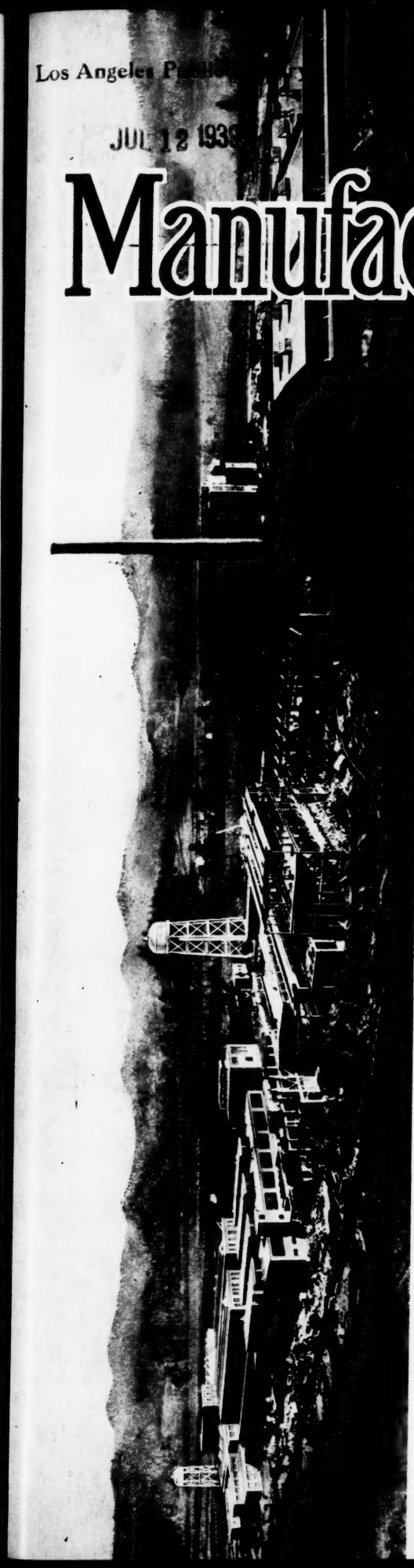
Los Angeles Public Library
JUL 12 1939



REFERENCE
DO NOT LOAN

Manufacturers Record

STACKS

The Blue Book *of* Southern Progress

THIS annual volume of Southern business history, soon to appear, will reveal that the South is not an "economic problem No. 1," not "the cause of unbalance in the nation" (what an unjust charge), but a developed economic asset of the nation with potentialities for still greater development that are equalled by no other area.

Private industry, recognizing the South's advantages, is constantly increasing the number and size of its plants in this section. The illustration on this page of the $2,000,000 Southern plant for the manufacture of cigarette paper, the first plant of its kind in the United States, is one of many examples.

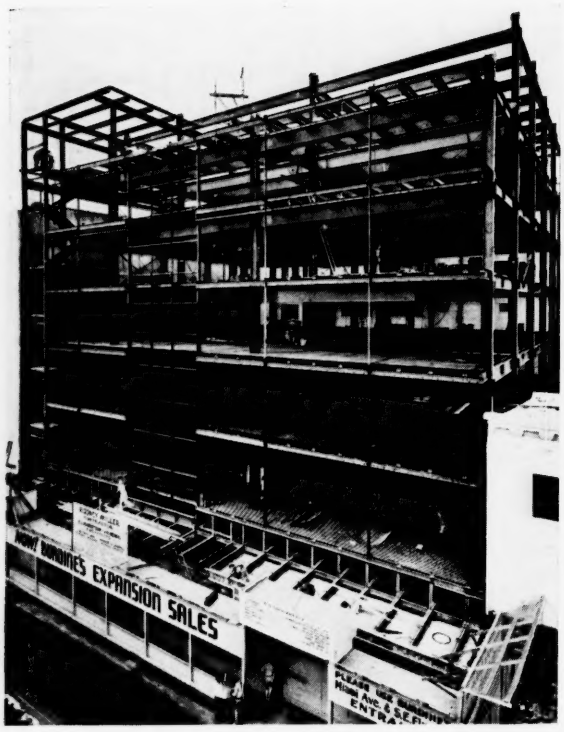
The newsprint mill at Lufkin, Texas, described elsewhere, costing $6,000,000, with a yearly capacity of 50,000 tons, is the South's first step toward the American newsprint market which has an annual value of $175,000,000 and is now largely filled from foreign sources.

The list of the South's "firsts" in industry is a long one. Many essential businesses have plants in the South that are the largest in the world.

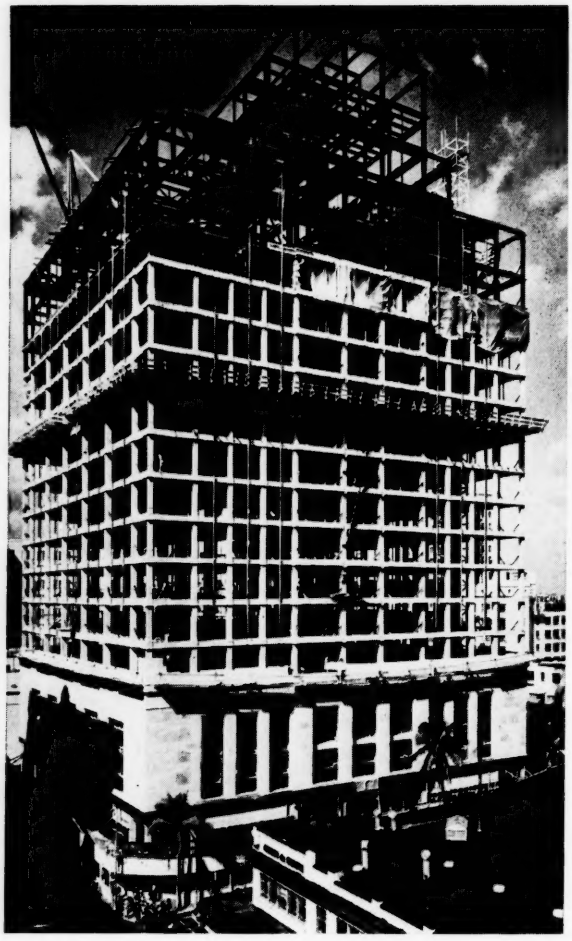
The Blue Book of Southern Progress will contain this list. In 1938 the number of manufacturing establishments in the South increased by 603, while there was a decline of 3,120 in the rest of the country.

Despite the handicaps that have affected progress in America, the South of all sections, in view of the great gifts with which nature has endowed this region, has ample reason to move forward resolutely with full knowledge that a frontier for new wealth creation is in the Southern states. Its fullest development means not only its own enrichment, but that of the country as a whole for this section is in truth the nation's greatest economic asset.

JULY, 1939



Above: Burdine Building, Miami, Florida; E. L. Robertson, Miami, Architect; L. B. Taylor, Miami, Structural Engineer; Rodney Miller, Miami, General Contractor.



Right: Alfred I. duPont Building, Miami. Marsh and Saxelbye, Jacksonville, Archts. George A. Fuller Co., New York, Gen'l. Contrs.

More Miami Skyline

Virginia Bridge

STEEL STRUCTURES

And it's Steel, as it generally is when we start skyward. Because Steel is the strongest and most adaptable of all building materials.

Its use carries definite assurance against time and the elements.

VIRGINIA BRIDGE COMPANY

Roanoke **Birmingham** **Memphis**

Atlanta **New York** **Dallas**

Entered as second class matter at the postoffice, Baltimore Md., under act of March 3, 1879. Volume 108, Number 7 Monthly

TABLE OF CONTENTS

JULY, 1939

Volume 108, Number 7

EDITORIALS

Blue Book of Southern Progress ..... Cover
A New Frontier 15
The Game 16
Outrageous Demands 16
What Are The Achievements 16
Making Known The Facts 17
Of Compelling Interest 17

FEATURE ARTICLES

The Industrial Opportunities of Texas 19
Railway Expenditures in Texas Exceed $10,000,000 a Month 27
Wage-Hour Law Hampers South's Lumber Industry, by H. C. Berckes 28
Shipbuilding in the United States, by H. Gerrish Smith 29
The Increasing Utility of Sulphur, by Langbourne M. Williams, Jr. ... 30
Manufacturing in the South 32
Construction Total is $452,480,000 in Southern States for Past Six Months 34
New Industrial Plants and Expansions 37
A Balance Sheet View of the Southwest, by C. C. Rockenback 58

DEPARTMENTS

Iron, Steel, and Metal Market 38
New Ways of Doing Things 40
Financial 42
Industrial News 46
Trade Literature 48
Index for Buyers 64
Index of Advertisers 66

Cover Illustration of Ecusta Cigarette Paper Plant by Courtesy of J. E. Sirrene & Co., Greenville, S. C.

MANUFACTURERS RECORD

Devoted to the Upbuilding of the Nation Through the Development of the South and Southwest as the Nation's Greatest Material Asset

Published Monthly by the
MANUFACTURERS RECORD PUBLISHING CO.
FRANK GOULD, President

Main Office: Manufacturers Record Building, Commerce and Water Streets, Baltimore, Md. Phone: Plaza 7080-1.
Branch Offices: New York—11 W. 42nd St. Phone: Longacre 5-7180.
Chicago—28 East Jackson Blvd., Room 1510. Phone: Harrison 5867.
Cleveland, O.—850 Euclid Ave., Room 310. Phone: Cherry 4050.

Subscription Rates: One Year $2.00, Two Years $3.00. Single Copies 25c, back numbers over 3 months old 50c. **Other Publications of the Manufacturers Record Publishing Co.** Construction (daily and monthly issues) $10.00 a year. Construction (monthly issues only) $2.00 a year. Blue Book of Southern Progress (annual) $1.00 per copy.

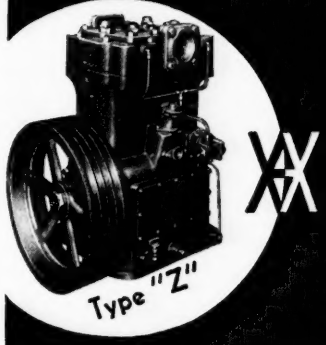
Member A.B.C.

"All-Purpose" AIR COMPRESSORS ★

by Westinghouse

AIR BRAKE CO.

★ Noted for
ECONOMY
LONG LIFE
DURABILITY



A rugged machine, two-cylinder, single-stage, water-cooled, continuous operation at 140 lbs. pressure. Forced feed lubricating system interlocked with unloader—Compresses air only when oil supply is adequate. Sizes 46 to 157 cu. ft. Supplied with grooved pulley, as shown, with coupling extension, or complete with motor, either direct or belt drive. Catalog T-2055.

Write for Catalog and Prices.

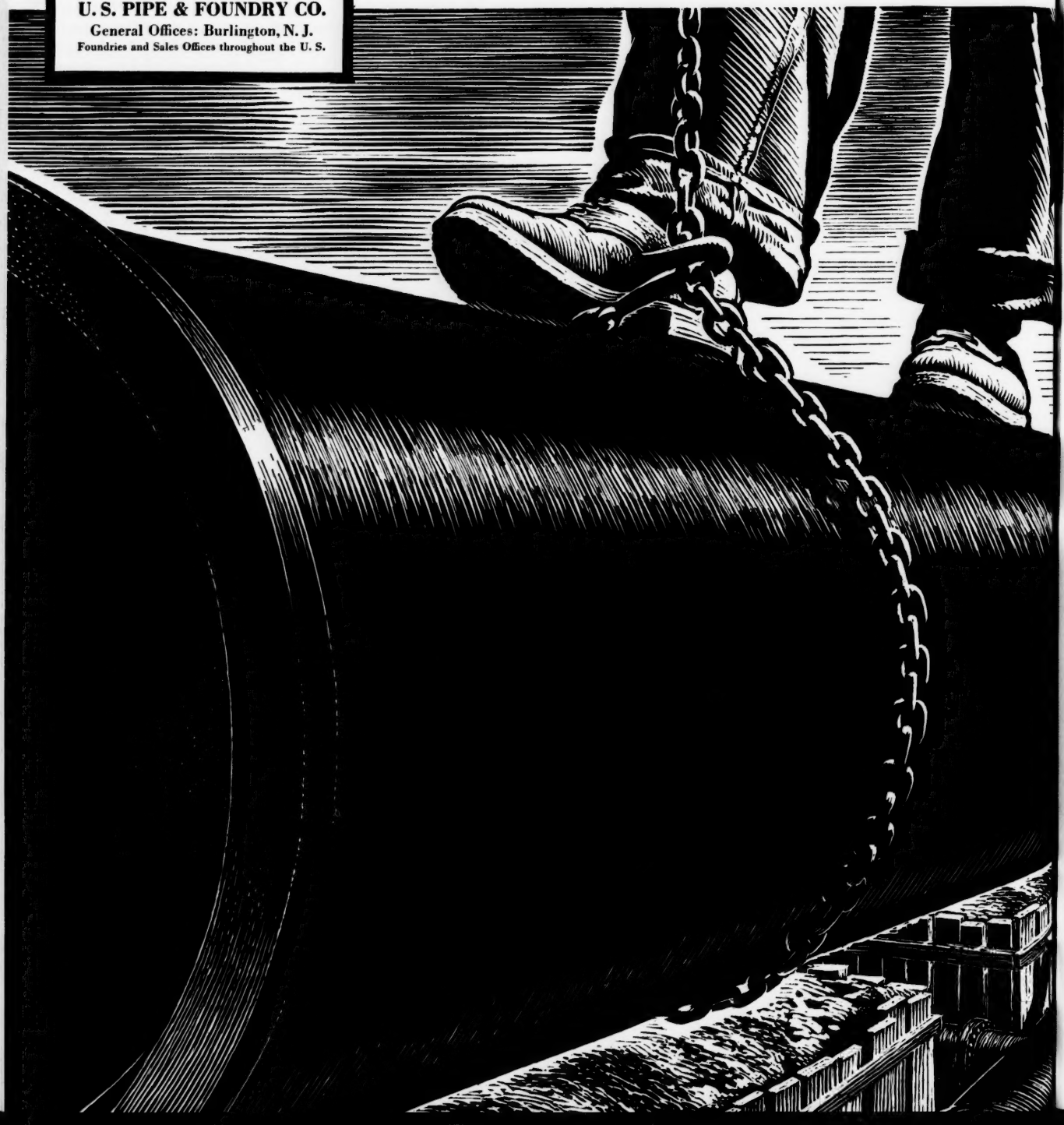
Westinghouse . . . .
AIR BRAKE CO.
Industrial Division
PITTSBURGH, PA.

U.S. cast iron PIPE

Centrifugally or pit cast for water, gas, sewerage, drainage and industrial service.

U. S. PIPE & FOUNDRY CO.
General Offices: Burlington, N. J.
Foundries and Sales Offices throughout the U. S.

AS time goes on, estimates of the life-expectancy of cast iron pipe grow higher. In an address at a convention last month a nationally known water works engineer put it at 180 years. However, history has yet to limit the span of useful life of cast iron pipe. We, who make it, are content to say—*more than a century.*



A NEW FRONTIER

ON another page appears a construction picture of the plant of the Southland Paper Mills which is of peculiar significance to the South and the United States. It will make newsprint paper from Southern pine, and in the vision of Dr. Charles H. Herty whom the South reveres for his indomitable work in bringing to pass the utilization of a great Southern resource, this is one of a number of mills that will enable the newspaper publishers of America to obtain their daily supply of paper at home instead of from foreign lands.

Someone will write some day the story of Charles H. Herty, of his vision of a richer industrial South and what he did to bring it about.

It will tell of chemical research and ceaseless effort in the laboratory to find a way to make not alone newspaper from Southern pine, but high grade book and writing paper from the same material, all of which was accomplished. It will tell of trips to mills of the North to induce test runs with an untried material and editions of Southern newspapers to prove the quality of the product.

It will tell of grave financial difficulties to be overcome, besides the opposition of men in high places who refused to recognize that in the development of this great resource of Southern pine the South and the nation would be enriched and employment increased.

Dr. Herty was told, as were others who had faith in Herty and were furthering his work, that the use of pine for the purpose proposed would denude the forests, and leave the South worse off than before. The fact was ignored that modern mill enterprise requires the planting of trees to more than take care of timber exhaustion.

The message came from Washington that it was necessary to buy wood pulp abroad instead of at home that foreigners might buy of us, and this while unemployed men walked our streets.

Dr. Herty told some of the story to this writer during a winter afternoon in his laboratory at Savannah. The discouragement he had met from financial and political sources was almost beyond belief. The picture he painted that afternoon of the great development he had in mind that would mean so much to his beloved South will never fade.

Now the vision is a reality and it is fitting that a plaque bearing the names of Herty and that of Garvan, his friend and benefactor, should be a part of the new building. The inscription is as follows:

The First Plant for Making
Commercial Newsprint Paper
From Southern Pine.
This Institution is the Fruit of the
Genius and Devotion of Two Great Americans,
Francis Patrick Garvan and Charles Holmes Herty.

A lot has been printed of late about the American System. Is it not built upon the work of men like Herty who overcome obstacles seemingly insurmountable? Shall frontiers ever vanish while there are such men to carry on?

Business has been accused of many crimes. The MANUFACTURERS RECORD has maintained and will continue to do so that right-minded men work for the love of the working and that is the heart of the American System. A system that creates its own frontiers.

Can anyone read of the history making flight of the American Clipper, which made it possible for its passengers to visit Marseilles and Paris only 48 hours from Port Washington, and not see that frontiers are what man makes?

We have been going through a strange phase in the United States where old ideas have been thrown aside and fantasies have taken possession of those who govern us. The MANUFACTURERS RECORD prefers to believe it is a passing phase and viewing such enterprise as we have attempted to describe, envisions a new outlook for private initiative and the country.

The Game

The purpose now is said to be to encourage private industry so Congress does away with the undistributed profits tax, and promptly slaps on 18 per cent income tax on Corporations.

We must keep on spending (it would never do to stop that) and business has to pay the bill, so while it is a bit disappointing, taxes must go up because spending is so absolutely necessary to get votes.

The purpose being to encourage private industry, it is a good idea to investigate the insurance companies. These vast depositories of sacred funds that have been a bulwark to those in need, should be gone over without delay. It will make everybody happier to find out why the cost of policies in companies rendering indispensable service should be so much alike. We might have to take them over some day and there is nothing like knowing what is what.

It is a good time, while we are encouraging business, to go over all the big companies. There is no sense in waiting until things get better, employment increases and everybody is better off. It is better to go trust-busting now to divert attention from other matters that the people do not understand.

We have not got as far with the utilities as we hoped, and another T.V.A. for the Southeast might be a good idea to stir things up down there. The private companies pay taxes that the states will have to get from the people, but the people don't know it and are voting for it 100 per cent until they find it out.

On this question of spending about which there is so much criticism, it is all a matter of bookkeeping. Charge it to investment, and there you are. Spending connotes waste; investment something that will bring returns.

It was said of one of our prosperous railroads that dividends were paid while the head bookkeeper lived, but he died and the dividends stopped. The government bookkeeper may find a terrible strain on him if he is made to count expenses as assets, but if he is a New Dealer he won't mind that. He may be one of the blithesome kind who likes the game of getting votes. It has all been wonderfully easy.

Outrageous Demands

While all of the details of the coal strike settlement have not been made public, from such news as has been given out it appears that the CIO won its demand for a closed shop. Since then similar efforts have been made in other fields of industry.

The serious tie-up of the Briggs Automobile Body plant, which resulted in the stoppage of production in several units of the automobile manufacturing industry, later was followed by the closing of the West Allis plant of the Allis-Chalmers Manufacturing Co. This came while negotiations were in progress concerning a new contract.

A statement published by the Company, signed by Otto H. Falk, Chairman, and Max W. Babb, President, pointed out that the contract which was in force was cancelled by the Union's Bargaining Committee which made a flat demand for a union or closed shop and check-off system, with a contract that would apply not only to the West Allis plant, but other plants of the Company in Pittsburgh and Boston.

There was no question on either side apparently about collective bargaining or refusal to meet with those selected by the Union to discuss terms with the Company.

In its statement the Company says:

> "The Company therefore refused to accept the Union shop demand, which would compel all employes to join the Union, irrespective of their wishes, and in so doing would deprive them of their right of freedom of choice.
>
> "The demand for a check-off system was also refused because the Company believes that each employe should have the exclusive right to spend, as he personally sees fit, the money earned as a result of his work."

If jobs are to be available to those who want to work, and if private enterprise which provides employment is to be permitted to proceed, there can be no compromise with outrageous demands by any class affecting the right of men to work when jobs offer.

The hearings before a Committee of the Senate on the Labor Relations Law and its administration have abundantly shown the need for promptly changing an Act that has altogether failed to accomplish the objective set forth in its preamble—"To diminish the causes of labor disputes."

Public opinion is not likely to tolerate much longer the high handed assurance the CIO has shown in its dealings with employers, even though it may have reason to regard itself as a political favorite.

What Are The Achievements?

Critics of the New Deal—that has piled up the greatest debt of all time and accomplished practically nothing—are met with the statement from those who want to change over everything, that no matter who gets the Presidential job next time, the great achievements of the present administration will not be thrown out. They say anyone who counts upon that will have a sad awakening.

What are the great achievements? We are virtually where we were after six years of experiments that have worked principally to get the country in a worse muddle than before.

Inertia has become almost the order of the day, and while it lasts government hand-outs are having a devitalizing effect upon a large part of the population.

General Johnson, for whom we have a great deal of respect, refers to "the first hundred days of Roosevelt" and what was accomplished. Does the General mean the closing of 10,000 banks and the great losses experienced by depositors? The right sort of reassurances at that time, recognizing that values had not been destroyed, would have stopped the runs and steadied the banks. Many of the slow loans which banks held, backed by good collateral as they were when made, and as market quotations have shown since, would before now have been recognized as assets instead of being treated as they were—as paper of little or no value—with their security dumped on a market which in the Spring of 1933 showed no sense of values.

Does he mean the NRA which was later thrown out? Where are the achievements, then or later, that we must hold on to no matter how much the country may want another deal?

Making Known The Facts

The South offers industry many and varied opportunities. Evidence comes from all parts of the country of growing interest in the resources nature has given this section beyond other areas.

In highly industrialized centers manufacturers find increasing difficulties in doing business, brought about by mounting taxes, labor unrest and of late unreasonable union demands for a closed shop.

Employers recognize to an increasing degree that the South is a frontier for development where profitable, creative work can be done.

Labor, climate, soil and resources all contribute to the success of enterprise.

It is particularly gratifying to those who for many years have been telling the world of the South's advantages and progress that advertising space in publications is being used by business firms to proclaim the fact that in this section are advantages not to be found elsewhere.

The United Pipe Gas Line Company in this issue invites industry to the "Gulf South." It says truly "industry is decentralizing southward to a friendlier atmosphere. Move to the Gulf South, where you are wanted and appreciated by your neighbors."

For some time past the Bethlehem Steel Company has been using its advertising space in the MANUFACTURERS RECORD to give interesting industrial data about various states of the South.

The facts of history are drawn upon, accompanied by text matter calling attention to the states' industrial and agricultural potentialities.

The extent to which this manufacturing enterprise draws upon the South for its supplies provides ready illustration of the fact that "The development of the South means the enrichment of the nation."

Of Compelling Interest

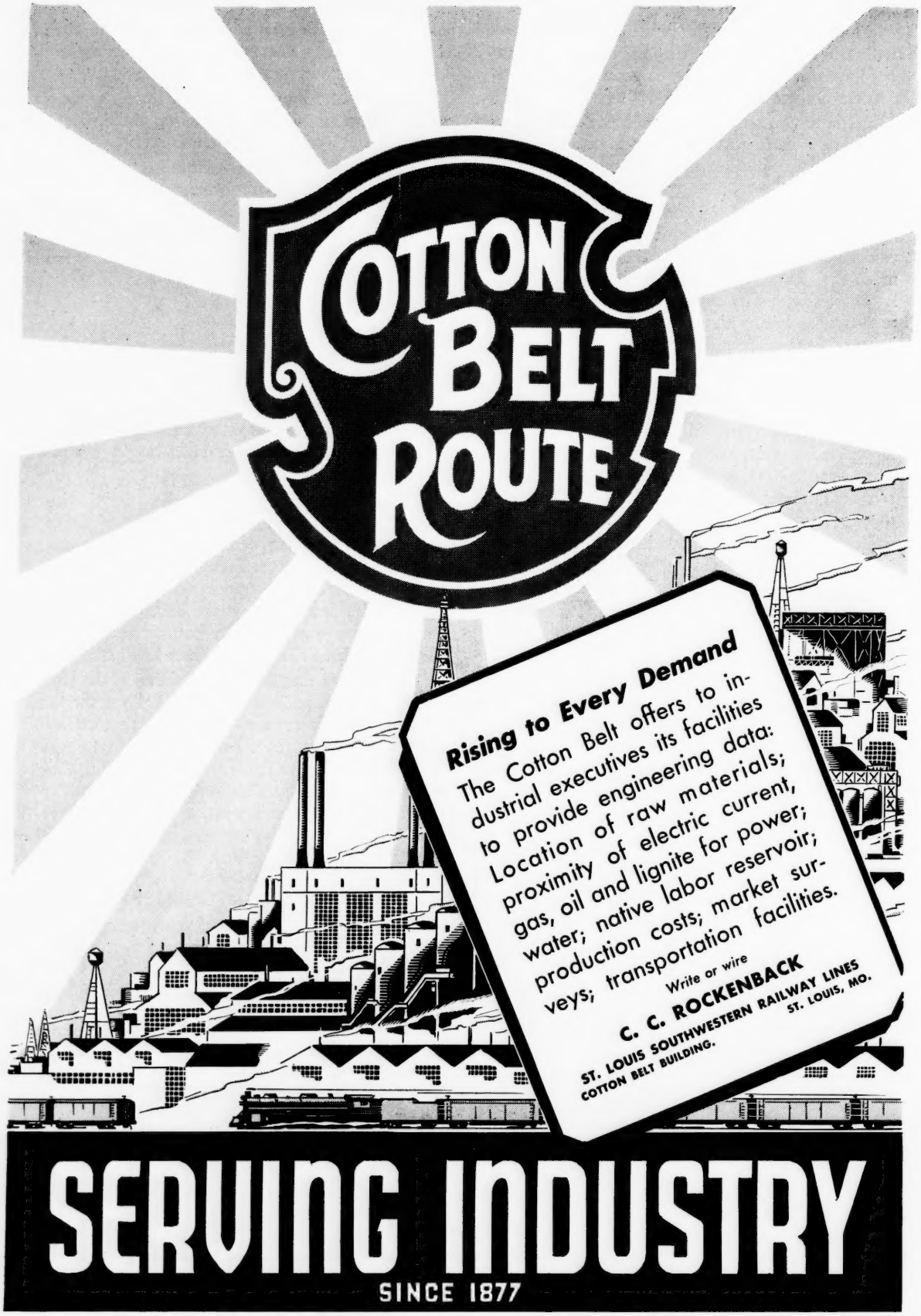
The reading pages of every issue of the MANUFACTURERS RECORD tell of the part private industry is taking in the development of the South. The progress of this section since 1865 has been a remarkable achievement.

A vast market has been opened up for the investment of capital and the sale of necessaries that go into the making of an industrial empire. Through advertising the South has told of its unequalled resources and suppliers of machinery and commodities from other areas have told of the merits of their goods to aid in creating new wealth. Advertising has been a potent force in all of this.

The changes that have come about in the way of advertising have been noteworthy. From the so-called cards of a cut and tried order that carried little information, there has developed an art in illustration and text that compels attention. Advertisers of today also show products that not only do work better and at lower cost than those made even in the recent past, but are reaching out with modern equipment constantly in anticipation of modern demand.

What men do is interesting to other men and this explains why the advertising of today ranks so high in public interest, not only from the way it is made up, but from the things it tells about. In a recent issue of this publication, for example, there was shown aluminum nails that don't corrode, tiny trucks that take heavy loads and turn around in a box car and stack goods to the roof, products of electric furnaces in the form of abrasives used to make fine lenses and to keep in order the mechanic's tools. Marvels of the chemist and the engineer and the whole scientific world are placed before us for our reading. We can thus envisage in part the work private industry is doing for the betterment of life.

The story advertising tells keeps pace with the ambition of America. There are those who frequently find the story more interesting than that in the reading pages, and they turn to the advertising pages of a publication first.


COTTON BELT ROUTE
Rising to Every Demand
The Cotton Belt offers to industrial executives its facilities to provide engineering data: Location of raw materials; proximity of electric current, gas, oil and lignite for power; water; native labor reservoir; production costs; market surveys; transportation facilities.
Write or wire
C. C. ROCKENBACK
ST. LOUIS SOUTHWESTERN RAILWAY LINES
COTTON BELT BUILDING. ST. LOUIS, MO.
SERVING INDUSTRY
SINCE 1877

The Industrial Opportunities of Texas

TEXAS, popularly known as the Lone Star State and first settled in 1685, declared its independence from Mexico in December, 1835 and elected Sam Houston as president early in 1836 after defeating the Mexican president, Santa Anna, at San Jacinto in April of the same year. Texas was finally admitted to statehood in the Union on December 29, 1845 after some delay caused by trepidation on the part of the North at the prospect of having the number of slave states increased. At the time of admittance, the area of Texas comprised 375,000 square miles but all the territory except that now included within the state borders was ceded to the United States for $10,000,000 in 1850. The resolution of annexation gave Texas the right of subdividing into as many as four states providing each of the new states could meet the population requirements of the United States.

The area of Texas, amounting to 265,896 square miles including 3,498 square miles of water, is more than eight per cent of the entire country and ranks first in size while its population, estimated at 6,147,000 in 1937, places Texas fifth in rank among the States. The negro and Mexican population is approximately 15 and 10 per cent respectively.

Climate

THE geographical size of Texas is such that it is difficult to approximate climatic conditions and averages. In spite of this fact however, it may be said that while generally mild, Texas climate is subject to rapid and marked changes of temperature especially during the winter, though the extent to which these changes occur varies in different parts of the state. The average annual temperature for the state is 64.8 degrees Fahrenheit varying from an average of 58.8 degrees Fahrenheit in the northwest to an average of 68.2 degrees Fahrenheit in the southwest. Throughout the state July is the warmest month with an average of 82.2 degrees Fahrenheit and January is the coldest with a low average in the northwest of 38.1 degrees Fahrenheit.

Rainfall is extremely varied. In the northwest the average is 20.54 inches; in the northeast, 33.42 inches; in the southeast, 35.84; and in the southwest it varies from 27.98 to 7.66 inches. Snowfall ranges from an average of 1.1 inches in the southeast to 10 inches in the northeast.

Transportation

THE total road and highway mileage in Texas as of May 1, 1939 aggregated approximately 188,700 miles. Of this, 22,585 miles are under the jurisdiction of the State Highway Department and include 10,993 miles with asphalt surface, 5,128 miles (exclusive of 595 miles in cities) of concrete and brick surface, 1,985 miles surfaced with gravel, caliche, etc., and slightly more than 3,880 miles of graded and unimproved. The remaining mileage of more than 166,100 miles are county roads of which over 730 miles are concrete or brick, over 4,000 miles have a bituminous surface, approximately 22,000 miles are surfaced with soil, gravel, or stone, 13,730 miles are graded and drained, and the remaining mileage is unimproved.

Throughout the eastern part of the state from north to south there are numerous bus and motor freight services connecting all the principal cities.

The number of miles of railroad trackage in Texas approximates 18,000 miles including that operated by switching and terminal companies. Almost 90 per cent of this mileage is operated by 20 Class I railroads of which more than half are major lines. Altogether, 70 railroad companies operate mileage in Texas—15 Class II roads, 22 Class III roads, and 13 switching and terminal companies.

With a general coast line of 367 miles on the Gulf of Mexico, Texas has extensive water transportation facilities. Channels of 25 feet or more in depth extend to Orange, Beaumont, Galveston, Houston, Freeport, Corpus Christi, and Port Isabel. The intracoastal canal from Corpus Christi connecting Texas with eastern and northern states provides an uninterrupted channel of nine feet or more deep with numerous harbor channels of similar depth enroute. An indication of the shipping facilities in Texas is found in the value of imports and exports in 1938. Imports through the Galveston district which includes Houston, Galveston and Texas City totaled $25,626,201 and exports $276,287,762. Through the Sabine district which includes Port Arthur, Sabine, Beaumont, Orange, and Lake Charles, La., imports and exports amounted to $2,013,044 and $84,830,623 respectively, and through the San Antonio district which includes San Antonio, Corpus Christi, Brownsville, Eagle Pass, and Laredo, imports were valued at $5,584,203 and exports at $69,657,452. Ample wharfage with railroad connections and extensive coastwise and foreign ship lines makes Texas a focal point for both domestic and international marketing.

Operating in or through Texas are 13 domestic Air routes under the control of eight different companies and exclusive of an air line to Mexico and South American countries. With 133 airports and landing fields strategically located throughout the state, Texas ranks second among all the states.

Manufactures and Finance

THE value of all manufactured products in 1937 was $1,581,422,401, representing an increase of nearly 50 per cent over the $1,059,245,252 figure for 1935. In the same period the number of wage earners increased 30,377, wages rose $42,302,901, and the cost of materials, etc. increased from $764,117,513 to $1,141,567,954.

Among the 109 industries listed separately in the census reports with three or more establishments each, 40 have products valued at more than a million dollars. Petroleum refining ranks first with products valued at $689,625,304. Other leading industries with the value of their products for 1937 are: meat and poultry packing, $104,934,256; machinery and allied products, $71,559,533; flour and other grain mill products, $62,873,757; cottonseed oil, meal and cake, $52,322,363; printing and publishing, $42,600,772; bread and bakery products $35,019,601; lumber and timber products, $28,367,805; clothing and hats, $23,653,842; shortenings (other than lard), $21,330,543; non-alcoholic beverages, $19,731,785; cotton woven goods, $14,802,905; bone carbon and lamp black, $14,516,343; canned fruits and vegetables, $14,366,609; butter, $12,775,339; rice cleaning and polishing, $12,392,470; cement, $12,137,472; and bags (other than paper), $11,016,722.

In the state's 4,422 establishments 129,501 people were employed with a payroll of $132,505,115.

The aggregate resources of the 856 banks reporting to the Comptroller of the Currency on June 30, 1938 totaled $1,525,188,000. The capital stock of these same banks including capital notes and debentures amounted to $99,399,000 while $1,341,756,000 was in individual deposits. The total bank clearings of reporting exchanges was $6,479,667,000. Federal tax receipts for the calendar year 1938 totaled $145,551,278.

Agriculture

THE total cash farm income for Texas in 1938 was $510,655,000 including $231,211,000 from crops and $210,630,000 from livestock and livestock products. The crop income was derived from a large variety of products grown on 26,431,000 acres. Cotton was the major crop with 8,784,000 acres yielding 3,086,000 bales and having a cash income of $126,994,000 in addition to $19,032,000 from 1,373,000 tons of cottonseed. Other important crops were: 35,046,000 bushels of wheat with a cash income of $18,837,000; 13,005,000 bushels of rice yielding $8,264,000; 75,648,000 bushels of corn provided a cash income of $4,302,000; $1,596,000 was derived from 36,920,000 bushels of oats; 161,100,000 pounds of peanuts yielded $2,326,000; and 19,845,000 pounds of pecans yielded $1,267,000.

Livestock is an important feature of Texas agriculture and the value of 19,997,000 head of livestock in 1938 was $333,696,000. Making up this total were 6,955,000 cattle (including 1,458,000 cows and heifers kept for milk) worth $179,348,000, and 9,856,000 sheep valued at $43,946,000. The cash farm income from dairy products amounted to $68,500,000 in 1938, made up of $45,745,000 from milk, $18,260,000 from eggs and $4,495,000 from chickens. Factory production of dairy products in 1937 included 33,384,000 pounds of butter, 25,405,000 pounds of evaporated milk, and 20,046,000 pounds of cheese.

In 1937, production of oranges amounted to 1,440,000 boxes and grapefruit numbered 11,800,000 boxes. Oranges average 90 pounds per box and grapefruit 80 pounds.

Fisheries

THE total catch of all commercial fish on the Gulf Coast during the past year was 19,138,418 with an estimated valuation of $3,827,684. Outstanding among the varieties caught was shrimp amounting to 11,693,729 pounds while other major species were: drum, 2,206,784 pounds; trout, 1,714,420 pounds; oysters, 1,249,912 pounds; redsnapper, 997,497 pounds; and redfish, 851,242 pounds. Conservation measures which have been passed on various occasions include operation of ten patrol boats to check legal tackle requirements, prevent illegal netting in closed waters, and to insure the catch is in conformity with the law as to size. More recently, a Diesel electric hydraulic dredge has been acquired to open and maintain channels connecting the Gulf with inner bays for the better protection of young shrimp, redfish, drum, etc.

Timber

TEXAS has a forested area of 36,825,000 acres of which 10,805,000 acres are classified as the commercial timber belt. The balance, or 26,000,000 acres, is classified as protection forests which serve their highest purpose by assisting in the control of water run-off and greatly reducing erosion. The predominant species identified to the protection forests are post oak, cedar, mesquite, and live oak. There are, however, scattered through this region many kinds that are commercially valuable to the forest products industry. While the post oak may not at present be of any commercial importance, with the advancement of chemical utilization of wood fiber this species may prove to be of ultimate importance. For the present, timber in the protection forest area is used for posts, fuel wood, and rough construction purposes.

Of the 10,805,000 acres of commercial timber land in east Texas, 7,160,000 acres are in saw timber and 1,480,000 acres are cordwood area. There are 28,500,000,000 board feet of saw timber in the stand, including 18,405,000,000 board feet of softwood, and 10,095,000,000 board feet of hardwood. Of this total, old growth on 1,470,000 acres accounts for 3,445,000,000 board feet of softwood, and 4,610,000,000 board feet of hardwood, while second growth on 5,690,000 acres consists of 14,960,000,000 board feet of softwood and 5,485,000,000.

Yellow pine is easily the leading variety, amounting to 18,190,000,000 board feet, and cypress is the only other softwood produced in any quantity, with 200,000,000 board feet. Among hardwoods, there are 5,075,000,000 board feet of oak, 2,110,000,000 board feet of red gum, 925,000,000 board feet of tupelo and black gum, and 1,985,000,000 board feet of mixed hardwoods.

Approximately 55,000,000 cords of cordwood consist of 6,985,000 cords from the cordwood area, of which 2,750,000 cords are softwood and 4,235,000 cords are hardwood, 47,535,000 cords from the saw timber areas, including 19,175,000 cords of softwood and 28,360,000 cords of hardwood, and over 500,000 cords from restocking areas.

The Texas Forest Service has in the commercial timberbelt 10 million acres under organized fire protection. Inside this area 70 towers and 1,830 miles of telephone line have been constructed, to assist the personnel in its protection activities.

Mining and Minerals

MINEROLOGICALLY, Texas is a wealthy state and the value of its annual output, which in 1936 was $638,732,530, exceeded the next highest state by almost 50 per cent. On the accompanying map are indicated those minerals now being commercially produced. But in addition to the latter, there are other known commercial deposits of many of these minerals while a vast quantity of untouched minerals await further exploration and production.

Reserves and new fields of petroleum and natural gas are constantly being increased and constitute a vast supply for the future.

Commercial deposits of coal and lignite are estimated at eight and thirty billion tons respectively, forming a fuel reserve of industrial importance.

Iron ores exist in two distinct localities. In the central part of the state are located the hematite and magnitite deposits largely confined to two or three counties around Iron Mountain. The most important deposits, however, are the limonite ones in the eastern Texas geosyncline embracing over 20 counties. Commercial economical development of these ores is now regarded optimistically with use of natural gas in place of the usual coke and fluxing limestone.

Additional salt domes producing singly or in conjunction salt, sulphur, and oil have been proven but are not yet in production.

There has been some feldspar produced in Llano county, and it is known to exist in Mason, Burnet, Gillespie and Blanco counties, all in the central section of the state.

Although up to this time there has been very little production, magnesite is to be found in Llano and Mason counties.

There is a possibility that the celestite present in Nolan and Brown counties justifies commercial development, especially since it has been reported from many other counties of central Texas.

The University of Texas Bureau of Economic Geology has received samples of gilsonite from Brewster county, but to date nothing is known concerning the quantity present. There is also novaculite in this county.

Some of the mines in Hudspeth and Presidio counties contain fluorite as a gangue mineral in ore veins. Diatomaceous earth is present in Crosby county.

At the present time tripoli is being produced in small quantities in Lampasas county, and is also known to be present in Burnet, Blanco, and San Saba counties.

Volcanic ash is found in many different counties which are scattered all over the state, and occurs in great quantities.

Quartz is found in two main regions, in Llano, Burnet, Mason, Gillespie, and Blanco counties in the central part of the state, and in Hudspeth and Culberson in the western portion. Arsenopyrite is present in Llano and El Paso counties.

The Eocene rocks of the Gulf Coastal Plain contain large amounts of greensand while small quantities of vermiculite have been reported in Llano and Mason counties. Samples of chromite have been brought in from Gillespie county, but as yet, the amount present is unknown.

There are mica deposits in Hudspeth, Culberson, Mason, and Llano counties and the Permian basin of west Texas contains potash but exploration is required to determine both quantity and quality.

Electric Power

PRODUCTION of electric power by public and private plants in Texas during 1938 totaled 3,461,827,000 kilowatt hours, an increase of 120,357,000 kilowatt hours over the total for 1937. Of this total, 3,344,868,000 kilowatt hours were produced by fuel plants, and but 116,959 kilowatt hours came from hydro-electric plants.

At the end of 1938, the 194 plants, owned by 60 different companies, had a combined generating capacity of 1,074,967 kilowatts. There were 116 internal combustion plants, with an installed capacity of 70,181 kilowatts, 51 steam power plants, with an installed capacity of 901,589 kilowatts, 21 hydro-electric plants, having a capacity of 70,565 kilowatts, and 6 combination plants together capable of generating 32,632 kilowatts. Both generating capacity and production of electricity in Texas is increasing with demand but meanwhile, an adequate supply is available by means of connecting systems with adjoining states which latter produce a surplus of five to ten per cent beyond domestic requirements.

Taxation

ALL corporations, domestic and foreign are required to pay annually a state franchise tax at the rate of 60 cents per thousand between one dollar and one million dollars; beyond a million the rate is 30 cents per thousand. The tax is based upon that portion of a corporation's outstanding stock, surplus and undivided profits, plus amount of outstanding bonds, notes and debentures, as the gross receipts from business done within the state bears to total receipts of the corporation's entire business. The minimum tax is $10.

Taxes on gross receipts and intangible assets are imposed on various kinds of corporations.

Sulphur is taxed at the rate of $1.03 per long ton; carbon black is taxed 1/12 of one cent per pound where the market value is four cents or less per pound and where the market value exceeds four cents the rate is 3 per cent. Gas produced and saved within the state or imported is taxed 3 per cent of market value. Marble and cinnabar ore are taxed ten cents per ton and other ores are taxed five cents per ton.

Oil produced in the state is subject to a tax of two cents per barrel or 2 per cent of market value if the price exceeds one dollar per barrel. There is also an additional tax of 3/16 of one cent on each barrel.

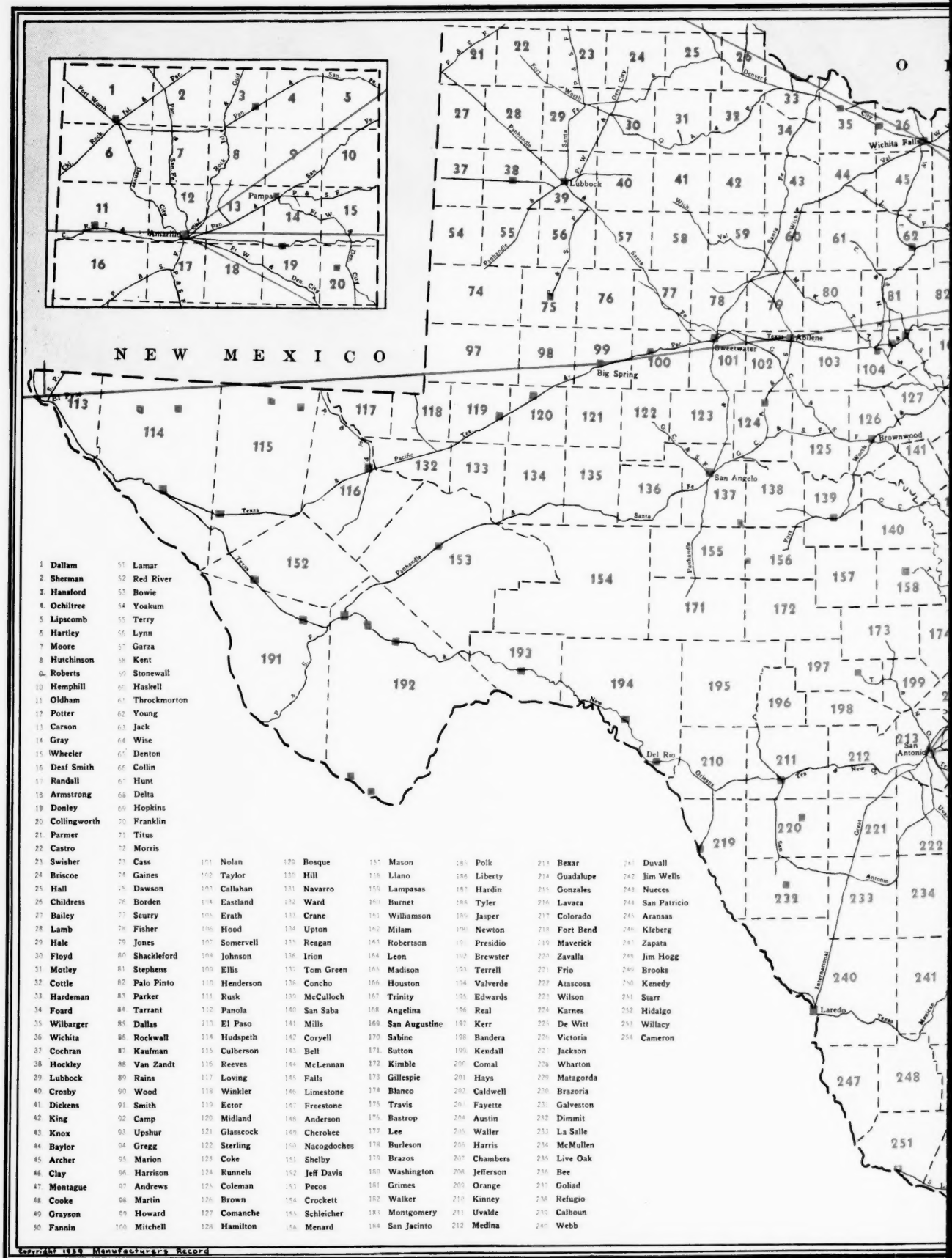
The total assessed value of taxable property in 1938 was $4,145,625,416. County tax rates in 1938 varied from a low of 28 cents to a high of $1.80.

Labor and Wages

THE density of population of Texas is 22.2 per square mile and only 41 per cent is classified as urban. Almost 17 per cent of the state's entire population is located in the nine cities of Austin, Beaumont, Dallas, El Paso, Fort Worth, Galveston, Port Arthur, San Antonio, and Waco. Native whites comprise 73.5 per cent and foreign born only 2.3 per cent.

The average wage rate for the state as a whole in all manufacturing industries is 59.2 cents per hour. In the various food industries the average rate is slightly above 40 cents and only a few fall below, varying from 29.8 cents to 36 cents. In the textile field averages range from 31 to 39.9 cents with a state average for the entire industry of 34.1 cents an hour. Among forest products industries rates vary from an average of 25.8 cents to a high of 48 cents, the state average being 39.6 cents per hour. Average wage rates in printing and publishing range from 56 to 97 cents per hour; cotton oil mills, 31.2 cents; paper products, 49.2 cents; foundry and machine shop products, 63.5 cents; miscellaneous machinery and iron and steel products, 57.5 cents; cement, 58.9; and stone and concrete products, except bricks, 58 cents. Crude petroleum production, employing about 30,000 workers, averages 94.7 cents and petroleum refining in which approximately 20,000 people are engaged averages 93.9 cents per hour. Carbon black production averages 84.4 cents, and paints and varnishes average 51.7 cents an hour.

Labor in Texas is intelligent and loyal and an ample supply is available in virtually every part of the state. Of the state's 254 counties, 219 support one or more manufacturing establishments.



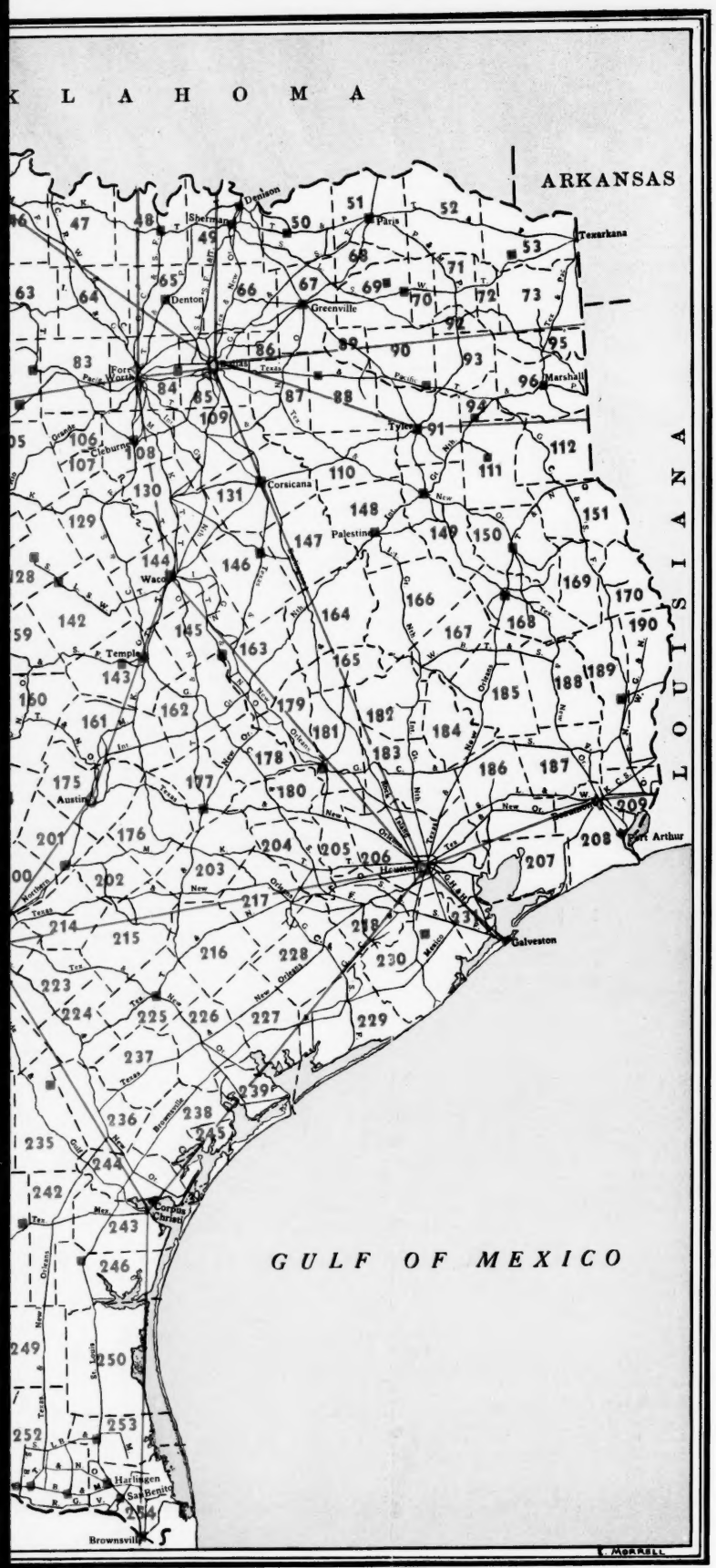
1	Dallam	51	Lamar	101	Nolan	129	Bosque	157	Mason	185	Polk	213	Bexar	241	Duvall
2	Sherman	52	Red River	102	Taylor	130	Hill	158	Llano	186	Liberty	214	Guadalupe	242	Jim Wells
3	Hansford	53	Bowie	103	Callahan	131	Navarro	159	Lampasas	187	Hardin	215	Gonzales	243	Nueces
4	Ochiltree	54	Yoakum	104	Eastland	132	Ward	160	Burnet	188	Tyler	216	Lavaca	244	San Patricio
5	Lipscomb	55	Terry	105	Erath	133	Crane	161	Williamson	189	Jasper	217	Colorado	245	Aransas
6	Hartley	56	Lynn	106	Hood	134	Upton	162	Milam	190	Newton	218	Fort Bend	246	Kleberg
7	Moore	57	Garza	107	Somervell	135	Reagan	163	Robertson	191	Presidio	219	Maverick	247	Zapata
8	Hutchinson	58	Kent	108	Johnson	136	Irion	164	Leon	192	Brewster	220	Zavalla	248	Jim Hogg
9	Roberts	59	Stonewall	109	Ellis	137	Tom Green	165	Madison	193	Terrell	221	Frio	249	Brooks
10	Hemphill	60	Haskell	110	Henderson	138	Concho	166	Houston	194	Valverde	222	Atascosa	250	Kenedy
11	Oldham	61	Throckmorton	111	Rusk	139	McCulloch	167	Trinity	195	Edwards	223	Wilson	251	Starr
12	Potter	62	Young	112	Panola	140	San Saba	168	Angelina	196	Real	224	Karnes	252	Hidalgo
13	Carson	63	Jack	113	El Paso	141	Mills	169	San Augustine	197	Kerr	225	De Witt	253	Willacy
14	Gray	64	Wise	114	Hudspeth	142	Coryell	170	Sabine	198	Bandera	226	Victoria	254	Cameron
15	Wheeler	65	Denton	115	Culberson	143	Bell	171	Sutton	199	Kendall	227	Jackson		
16	Deaf Smith	66	Collin	116	Reeves	144	McLennan	172	Kimble	200	Comal	228	Wharton		
17	Randall	67	Hunt	117	Loving	145	Falls	173	Gillespie	201	Hays	229	Matagorda		
18	Armstrong	68	Delta	118	Winkler	146	Limestone	174	Blanco	202	Caldwell	230	Brazoria		
19	Donley	69	Hopkins	119	Ector	147	Freestone	175	Travis	203	Fayette	231	Galveston		
20	Collingworth	70	Franklin	120	Midland	148	Anderson	176	Bastrop	204	Austin	232	Dimmit		
21	Parmer	71	Titus	121	Glasscock	149	Cherokee	177	Lee	205	Waller	233	La Salle		
22	Castro	72	Morris	122	Sterling	150	Nacogdoches	178	Burleson	206	Harris	234	McMullen		
23	Swisher	73	Cass	123	Coke	151	Shelby	179	Brazos	207	Chambers	235	Live Oak		
24	Briscoe	74	Gaines	124	Runnels	152	Jeff Davis	180	Washington	208	Jefferson	236	Bee		
25	Hall	75	Dawson	125	Coleman	153	Pecos	181	Grimes	209	Orange	237	Goliad		
26	Childress	76	Borden	126	Brown	154	Crockett	182	Walker	210	Kinney	238	Refugio		
27	Bailey	77	Scurry	127	Comanche	155	Schleicher	183	Montgomery	211	Uvalde	239	Calhoun		
28	Lamb	78	Fisher	128	Hamilton	156	Menard	184	San Jacinto	212	Medina	240	Webb		
29	Hale	79	Jones												
30	Floyd	80	Shackleford												
31	Motley	81	Stephens												
32	Cottle	82	Palo Pinto												
33	Hardeman	83	Parker												
34	Foard	84	Tarrant												
35	Wilbarger	85	Dallas												
36	Wichita	86	Rockwall												
37	Cochran	87	Kaufman												
38	Hockley	88	Van Zandt												
39	Lubbock	89	Rains												
40	Crosby	90	Wood												
41	Dickens	91	Smith												
42	King	92	Camp												
43	Knox	93	Upshur												
44	Baylor	94	Gregg												
45	Archer	95	Marion												
46	Clay	96	Harrison												
47	Montague	97	Andrews												
48	Cooke	98	Martin												
49	Grayson	99	Howard												
50	Fannin	100	Mitchell												

Copyright 1939 Manufacturers Record

TEXAS

Its principal raw materials and transportation facilities, with facts on the reverse side pertaining to its industrial growth and opportunities for industry.

MINERAL	COUNTIES IN WHICH MINERAL IS COMMERCIALLY PRODUCED
Asphalt—	211
Barite—	158
Basalt—	211
Bentonite—	167, 203, 215
Cement—	84, 85, 113, 144, 206, 213
Clay—	12, 36, 39, 48, 53, 64, 65, 69, 71, 73, 79, 82, 84, 85, 89, 90, 91, 93, 96, 102, 109, 110, 113, 114, 125, 126, 131, 144, 145, 146, 168, 176, 203, 206, 209, 212, 213, 214, 215, 218, 254
Coal & lignite—	71, 82, 192, 213, 240
Fuller's earth—	168, 1
Gas—	3, 12, 49, 61, 6 100, 103 to 1 131, 138, 151, 193, 194, 205, 2 226 to 230, 234 252



, 219, 223, 240, 251, 252,

90, 96, 110, 148, 162, 176,

32, 203

2, 80 to 83, 91, 95, 96,

05, 112, 124 to 128,

55, 162, 164, 166, 183,

6, 212, 213, 219 to 221,

to 244, 247, 249, 251,

Gas & Oil—46, 47, 57, 73, 74, 95, 111, 118, 125, 126, 148, 154, 188, 212, 213, 217, 226, 238, 240, 241, 243, 247, 251

Granite—113, 158, 160, 173

Graphite—158

Gypsum—33, 78, 101, 249

Lime—85, 113, 161, 175, 200, 206

Limestone—64, 79, 85, 113, 125, 126, 135, 146, 158, 160, 161, 171, 200, 213
(state obtains limestone from 33 counties)

Manganese & manganiferous ore—152

Marble—158, 160, 175

Oil—7, 8, 13 to 15, 34 to 38, 44 to 49, 54, 57, 59 to 63, 65, 69 to 71, 73 to 75, 77 to 82, 88, 91, 93 to 95, 97, 99, 100, 102 to 105, 110 to 112, 116 to 119, 121, 122, 124 to 127, 130 to 136, 139, 144 to 151, 153, 154, 161, 162, 166, 168, 172, 175, 176, 178, 180, 183, 185 to 187, 190, 202, 204 to 209, 212 to 215, 218 to 231, 234 to 249, 251 to 253

Oil & sulphur—228

Quicksilver—192

Salt—38, 88, 148, 206, 243

Sand & gravel—11, 25, 47, 49, 53, 59, 60, 65, 84, 85, 101, 108, 109, 113, 124, 128, 143, 144, 162, 163, 175, 184, 186, 189, 203, 206, 208, 213, 214, 217, 222, 225, 226, 240, 244, 251, 252

Sandstone—47, 91, 182

Sodium compounds (natural)—132

Stone (miscellaneous)—49, 85, 92, 105, 114, 241

Sulphur—218, 229, 230, 241

TIMBER

Short-leaf pine—52, 53, 71, 72, 73, 90, 91, 92, 93, 94, 95, 96, 110, 111, 112, 148, 149, 150, 151, 166, 167, 168, 169

Long-leaf pine—167, 168, 169, 170, 185, 187, 188, 189, 190

Loblolly pine—176, 181, 182, 183, 184, 185, 186, 187, 203, 206, 208, 209

Post oak—50, 51, 52, 53, 67, 68, 69, 70, 71, 72, 87, 88, 89, 90, 91, 110, 131, 145, 146, 147, 148, 161, 162, 163, 164, 165, 166, 175, 176, 177, 178, 179, 180, 181, 202, 203, 204, 205, 212, 213, 214, 215, 216, 217, 221, 222, 223, 224, 225, 226, 233, 234, 235, 236, 237

AGRICULTURAL PRODUCTS

Corn—1 to 10, 13 to 75, 77 to 113, 119, 120, 123 to 131, 136 to 153, 155 to 170, 172 to 192, 194 to 209, 211 to 249, 251 to 254

Cotton—3 to 5, 7 to 10, 13 to 114, 116, 119 to 132, 136 to 153, 155 to 192, 197 to 254

Grape-fruit—242, 249, 252, 253, 254

Oranges—187, 208, 209, 226, 230, 231, 236, 240, 242, 249, 252, 253, 254

Peanuts—25, 39, 46, 47, 48, 49, 50, 51, 52, 53, 55, 58, 63, 64, 65, 67, 68, 69, 70, 71, 72, 73, 75, 79, 81, 82, 83, 84, 85, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 103, 104, 105, 106, 107, 108, 110, 111, 112, 126, 127, 130, 140, 146, 147, 148, 149, 150, 151, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 173, 174, 176, 177, 179, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 202, 203, 204, 205, 206, 208, 209, 212, 213, 214, 215, 216, 221, 222, 223, 225, 230, 231, 237

Rice—186, 205 to 209, 217, 218, 227 to 230

Sweetpotatoes—14, 15, 19, 20, 31, 39, 46 to 53, 63 to 73, 81 to 96, 100, 102 to 113, 116, 126 to 128, 130, 131, 140 to 151, 157, 160 to 170, 173, 176 to 190, 196 to 198, 202 to 209, 212 to 218, 222 to 231, 236 to 238, 249, 252, 254

A small quantity of soy beans, sugarcane, figs, peaches, and pecans is also produced.

Commercial fisheries—206, 207, 208, 227, 229, 230, 231, 238, 239, 243, 244, 245, 246, 254

Natural gas is available for consumption in all counties.

———Railroads

———Navigable rivers

———Airlines

■ Airports—also at principal cities printed in red

THE *Gulf* SOUTH INVITES INDUSTRY

AMERICA'S INDUSTRIAL FRONTIER

• American industry, looking for new locations, turns to the Gulf South . . . in the heart of a swiftly growing territory served with abundant, dependable Natural Gas.

Here is a land of industrial opportunity . . . rich in raw materials—minerals, timber, cotton, and a score of others . . . networked with highways, waterways, railways, airways . . . gateway to Pan-American markets . . . ready with buying power of its own.

The Gulf South offers intelligent, reliable white labor . . . good schools and higher educational advantages . . . mild weather, with ample rainfall . . . . increasing population and markets . . . active home and business construction . . . low taxes (ten year remissions in certain areas).

Industry is decentralizing southward to a friendlier atmosphere. Move to the Gulf South, where you are wanted and appreciated by your neighbors!

For information on GULF SOUTH opportunities write to

INDUSTRIAL DEVELOPMENT DEPARTMENT

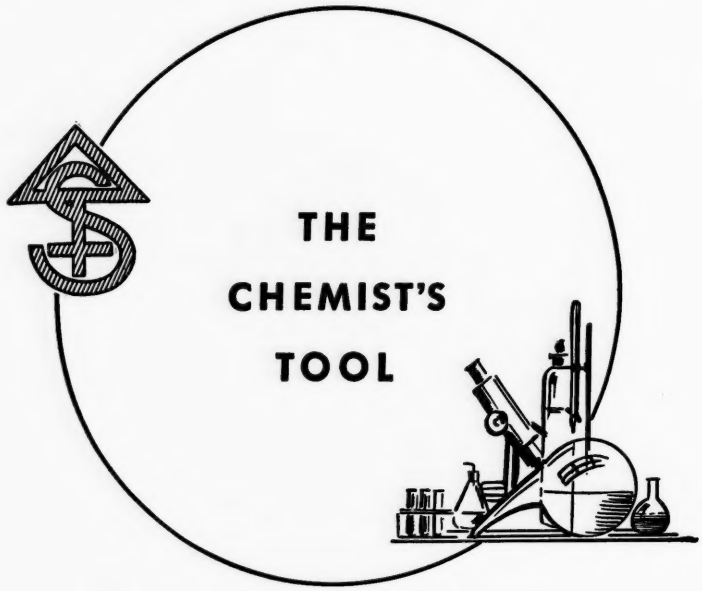
UNITED GAS
PIPE LINE COMPANY

FOR TEXAS, *Mail received at:* Beaumont, Beeville, Dallas, Fort Worth, Houston, Longview, San Antonio and Wichita Falls. **FOR LOUISIANA,** *Mail received at:* Baton Rouge, Lake Charles, Monroe and Shreveport. **FOR MISSISSIPPI, FLORIDA and ALABAMA,** *Mail received at:* Jackson, Mississippi.

ALL INQUIRIES CONSIDERED CONFIDENTIAL

Copyright, 1939, United Gas Pipe Line Co.

SULPHUR



All honor to the chemist, the chemical engineer and the chemical manufacturer for what they have done and are doing in converting nature's raw materials into wealth and in contributing to man's health and comfort. » » » What the chemist has done with one of these materials — SULPHUR — is particularly interesting. It illustrates the versatility of this element. » » » One hundred years ago, SULPHUR helped to give birth to a new industry — the rubber industry — which in turn made possible our present day automobile, using new materials such as plastics, lacquers, safety glass, etc. » » » A half century or so ago it aided in the development of our fertilizer and petroleum industries. As sulphur dioxide it converted forests to pulp and paper and helped to enlighten the nation. » » » A few decades ago — SULPHUR — in the form of carbon bisulphide again touched our forests and changed them, this time to synthetic silk, cellophane and a host of related compounds. » » » Today SULPHUR assumes a new role. Sulfanilamide and sulfapyridine are called miracle medicines. » » » SULPHUR, the versatile element, surely has been a useful tool for the chemical industry in the constant betterment of man's living conditions.

TEXAS GULF SULPHUR CO.
75 E. 45th Street New York City
Mines: Newgulf and Long Point, Texas

Helping Industry Build
A BIGGER TEXAS

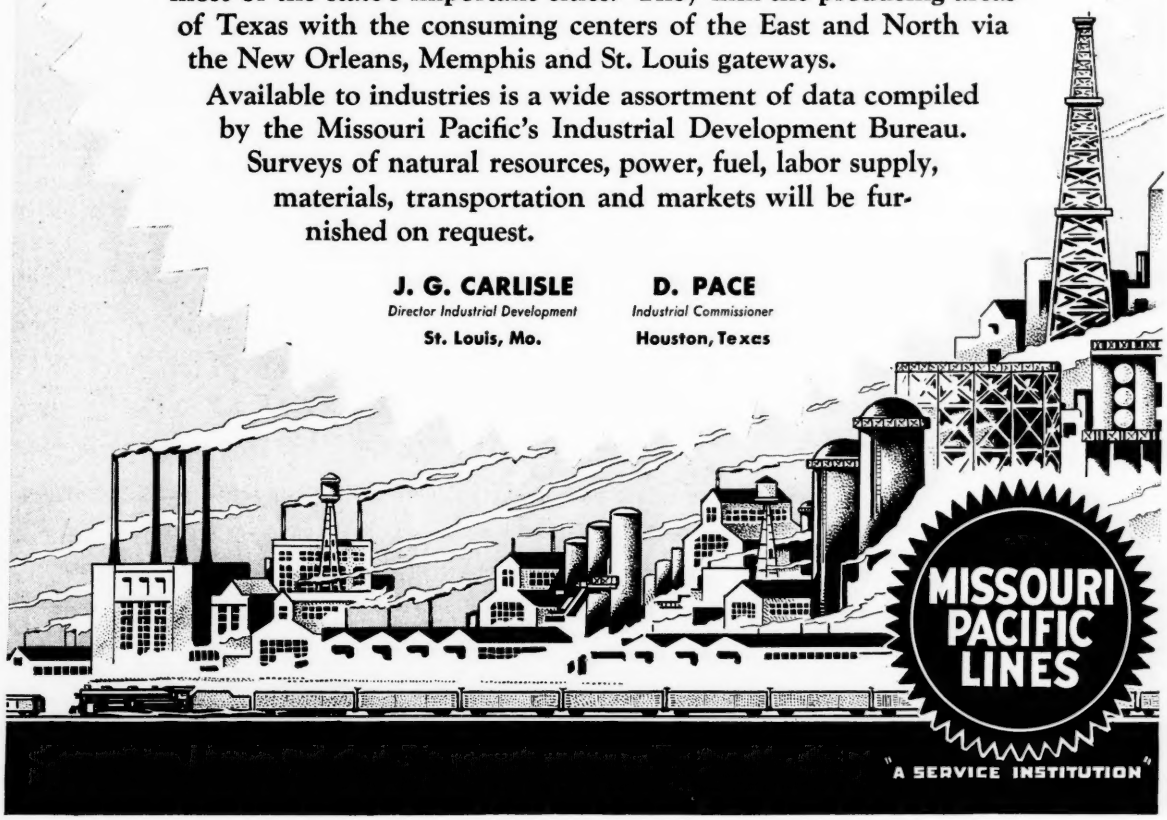
Texas, with her wealth of raw materials, abundance of fuel and power, skilled labor, unexcelled railroad facilities and numerous deep water ports is destined for rapid industrial development.

Tracks of the Missouri Pacific Lines rim the Texas Gulf and connect most of the state's important cities. They link the producing areas of Texas with the consuming centers of the East and North via the New Orleans, Memphis and St. Louis gateways.

Available to industries is a wide assortment of data compiled by the Missouri Pacific's Industrial Development Bureau. Surveys of natural resources, power, fuel, labor supply, materials, transportation and markets will be furnished on request.

J. G. CARLISLE
Director Industrial Development
St. Louis, Mo.

D. PACE
Industrial Commissioner
Houston, Texas



TO AID AND PROTECT THE ECONOMIC DEVELOPMENT OF THE SOUTH

GOVERNOR OF NORTH CAROLINA

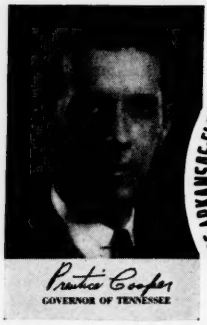
GOVERNOR OF LOUISIANA

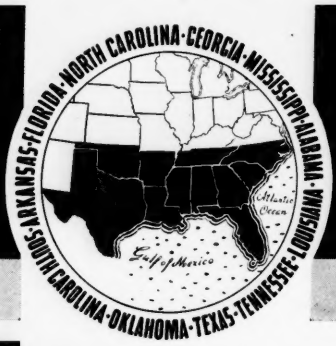
GOVERNOR OF GEORGIA

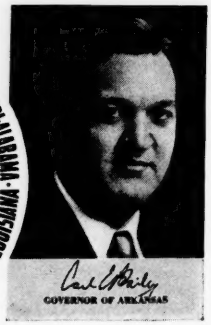
GOVERNOR OF FLORIDA

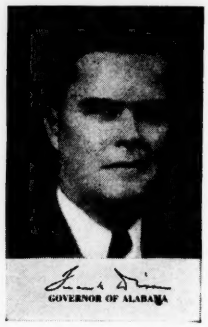
GOVERNOR OF MISSISSIPPI

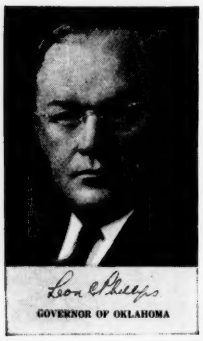
GOVERNOR OF SOUTH CAROLINA


GOVERNOR OF TENNESSEE




GOVERNOR OF ARKANSAS


GOVERNOR OF ALABAMA


GOVERNOR OF OKLAHOMA

GOVERNOR OF TEXAS

WE, THE GOVERNORS

INVITE INDUSTRY

TO THE SOUTH

WHERE EQUAL OR BETTER STANDARDS OF LIVING

COST LESS

IT'S not cheap labor, it's cheaper living which enables the native-born Southern worker to help you cut production costs. Food, clothing, fuel and shelter cost less in the South because of our year round moderate climate. These savings, plus ideal working conditions, plus lower capital investment, plus lower construction costs, plus an unlimited supply of raw materials, are reflected in production costs. Add to this a rich and growing market and you will begin to understand the tremendous industrial expansion now under way in the South.

Southern Governors Conference

Bona Allen Building, Atlanta, Georgia

LAWRENCE WOOD ROBERT, JR., Executive Director **CARROLL DOWNES**, Industrial Consultant

The Southern Pacific railroad terminal at Houston, Texas

Railway Expenditures In Texas Exceed $10,000,000 A Month

TAKEN collectively, the railroads of Texas constitute a gigantic industry, surpassing in investment, employment and payrolls every other industrial group in the Lone Star State. Railroad expenditures in the state for fuel, materials and supplies, labor and taxes are estimated at $121,000,000 annually, not including large railway purchases outside the state of petroleum products, lumber products and food products originating in Texas.

Making up this huge industry are some seventy distinct railway properties embracing approximately 40,000 miles of railway lines, of which 16,500 are within the state of Texas. In railway mileage, Texas stands head and shoulders above every other state in the Union.

Over this network of railroads and connecting lines hundreds of freight trains operate daily—carrying the products of Texas farms, mines, forests and factories to all parts of the continent and to the seaports for export to all parts of the world. Returning trains bring an unending stream of manufactured products to supply the wants of the six million and more people of Texas. Numerous other trains provide Texas with essential passenger, express and mail transportation.

Railroads are among the country's largest consumers of fuel oil, lubricating oils and greases, and Texas produces approximately 40 per cent of the nation's petroleum. The Class One railroads of the United States (railroads each having gross revenues of more than $1,000,000) spent $67,790,000 for these items in 1938. It is reasonable to assume that around 40 per cent of this sum, or $27,116,000, was for fuel oil and other petroleum products from Texas wells.

Railroads normally take around one-fifth of the domestic consumption of forest products in this country. They are among the largest buyers of Texas lumber, cross-ties, piling, poles and other forest products. The importance of this market is indicated by the fact that in 1937, a year of sub-normal railway buying, four of the many railroads which draw on Texas mills spent more than $3,500,000 in the state for cross-ties, sawed lumber and other products derived from forests.

In addition, the railroads spent millions of dollars in Texas each year for tie treating and wood preservatives, ballast materials, cement, asphalt, paint, iron and brass castings, car wheels, brake shoes, reinforcing rods, pipe and pipe fittings, hand and machine tools, hardware, roofing materials, cotton duck, cotton and wool waste, ice, stationery and printing and other items. Texas is also an important source of supply for fresh fruits, vegetables, dairy and packinghouse products and sea foods for railway dining cars and restaurants.

Responding to a questionnaire of *Railway Age*, fifty-five Class I railroads having no railway mileage in Texas reported spending $4,595,583 in the state, and eleven Class One railroads having mileage in Texas reported spending $20,012,586 in the state in 1937. Even this large sum, totaling $24,607,169, does not include purchases of fuel, materials and supplies made by fifty small railroads and switching and terminal companies located in Texas.

Nor do the foregoing figures include some $7,000,000 estimated to have been spent by the railroads in Texas in that year for such sundry purposes as electric light and power, telephone and telegraph service, water, payments to contractors, land and building purchases, rentals, doctors, hospitals, insurance and advertising.

A recent survey by the Association of American Railroads of railway expenditures by states, counties, cities and towns in 1937, disclosed that the Class I railroads made purchases in no fewer than 603 Texas cities and towns located in 190 counties in the state.

Railway tax payments are even more widely distributed. According to data compiled by the Railway and Express Employes' Association, the railroads paid taxes in 234 of the state's 254 counties, their total 1937 payments in the state amounting to $9,802,590, of which $1,525,861 went to support the public schools, $875,345 went to highways, $1,469,558 went to city governments and $953,798 went to county governments. The remaining $4,848,309 represented state and federal taxes, excise taxes, capital stock and franchise taxes and other levies.

Railway operations in Texas provide

(*Continued on page* 52)

Wage-Hour Law Hampers South's Lumber Industry

BY

H. C. Berckes

Secretary,
Southern Pine Industry Committee

AT the time this article is written eight months have elapsed since the Federal Wage-Hour law became operative, on October 24, 1938. As is well known, the Southern lumber industry vigorously and openly opposed enactment of this legislation, but when the Act became operative, the vast majority of Southern lumber operators accepted it as the law of the land and sincerely endeavored to comply with its provisions, although still of the opinion that it is unsound economically, un-American in principle and creates inequities and dislocations harmful to our industries and to the public welfare.

During the eight months the wage-hour law has been in operation it has caused much confusion and hindrance to business and industry, widespread dissatisfaction among many affected elements, actual losses to numerous units in various fields, besides reducing the weekly earnings of a large number of skilled workers, and bringing about more unemployment. Dissatisfaction with the law is evidenced by the recent action of the Southern Governors' Conference at Memphis in condemning the "mal-administration" of the act; the strong opposition of the great farm groups to proposed amendments to the Act and certain existing provisions; the futile protests of Southern members of the Textile Industry Committee against adoption of a 32½-cent minimum wage for the industry which would bear heaviest upon Southern manufacturers, and the demand of the United States Chamber of Commerce, representing business and industry in all sections of the country, for repeal of the law.

At a meeting of the Southern Pine Industry Committee on June 16, the situation brought about by the Act in the South's lumber industry specifically, was carefully reviewed by manufacturers from all sections of the South. In the Southern lumber industry, which comprises from 11,000 to 15,000 units, the great majority of them small and widely scattered over isolated areas, and frequently changing locations, it is extremely difficult, if not actually impossible, to procure accurate figures on the effects of the wage-hour law upon the members of the industry, both small and large operations. But from the information derived from reports from all parts of the South, leaders in the industry are convinced of a number of important detrimental effects upon the industry due to the operation of the wage-hour law.

It is definitely known that a great number of small mills which were already on the marginal line, have been obliged to close down operations, thus throwing many workers out of employment; still another large number of small operators have gone into strictly intrastate business, not complying with prescribed minimum wages and maximum hours, thereby creating unfavorable competitive conditions for mills that also do an intrastate business; and that many other small mills, according to complaints placed on file, are violating the law with respect to wages and hours, causing further unfair competition and losses to those manufacturers who are conscien-

(*Continued on page 54*)

IN COMING ISSUES

Mineral Production of the South

By George C. Branner

In an unusually complete and comprehensive article, well illustrated by original tables, graphs, charts, and pictures, George C. Branner, State Geologist of Arkansas, outlines the geophysical rock formations which control the occurrence of minerals in the South and answers in a very interesting way factually and statistically, the following three questions:

1. What has been the mineral contribution of the South to the nation's economy during the decade of 1927-1936?

2. What mineral industries have been largely responsible for the material increase in mineral production in the South since 1905?

3. What of the mineral reserves of the South and the future of mineral production there?

This feature will appear in a fall issue of the Manufacturers Record.

The new $16,000,000 liner "America" as she will appear when completed. This vessel is the largest and fastest liner ever built in the United States and is being constructed for the United States Lines by the Newport News Shipbuilding and Dry Dock Company at Newport News, Va. Dimensions of this will be: 723 feet long; beam, 93 feet; load-draft capacity about 34,000 tons, and she will carry 1,219 passengers and a crew of 639.

Shipbuilding In The United States

BY

H. Gerrish Smith,

President
National Association of American Shipbuilders

An outstanding event in the development of the American merchant marine has occurred in the first half of the calendar year 1939 and that is, the delivery ready for service of the 8,875 deadweight cargo vessel "Donald McKay"—the first vessel of the strictly cargo type to be built in the United States for foreign trade in the past fifteen years. The vessels have a sustained sea-speed of 15½ knots under full load and a cruising radius of 13,000 miles.

Of the 20 vessels of the C-2 type under construction on January 1, 1939, of which the "Donald McKay" is one, 7 vessels have been launched, and with one or two exceptions it is anticipated that all of the 20 vessels of this type will have been completed and put into service by the end of the current year. It is also pleasing to record that definite assignments have been made by the Maritime Commission for the use of all of the vessels of this type now building.

Since January 1, 1939 contracts have been placed for additional commercial vessels in the United States as well as for some naval vessels, so that excluding the first vessel of the C-2 type, now delivered, there are under construction in the private shipyards of the United States at the present time, 67 seagoing commercial vessels of 1,000 gross tons and over, and 44 naval vessels, while there are in addition, 49 naval vessels under construction in the Government Navy Yards.

Of the 93 naval vessels under construction in the United States of 528,400 displacement tons, not less than 111,000 displacement tons are under construction in yards south of the Mason-Dixon Line.

The following is a tabular statement of commercial seagoing vessels under construction in the coastal shipyards of the United States on July 1, 1939:

(Continued on page 52)

COMMERCIAL VESSELS OF 1000 GROSS TONS AND OVER UNDER CONSTRUCTION IN COASTAL YARDS ON JULY 1, 1939

Above Mason and Dixon Line

Yard	Class of Vessel	Gross Tons
Bethlehem Steel Co. (Fore River Plant)	1 Pass-Cargo	9,000
	4 Cargo	34,000
Federal Shipbuilding & Dry Dock Co.	2 Tankers	23,000
	6 Cargo	44,400
	6 Cargo	53,400
Sun Shipbuilding & Dry Dock Co.	5 Cargo	37,000
	4 Cargo	35,600
	4 Pass-Cargo	36,800
	2 Tankers	19,969
	2 Seatrain Cargo	16,200
Total:	36 Vessels	309,369

Below Mason and Dixon Line

Bethlehem Steel Co. (Sparrows Point)	4 Tankers	42,500
	3 Pass-Cargo	24,900
Newport News Shipbuilding & D/d Co.	1 Passenger	24,800
	3 Tankers	34,500
	4 Cargo	29,600
	6 Pass-Cargo	55,200
Total:	21 Vessels	211,500

Gulf Coast

Tampa Shipbuilding & Engineering Co.	4 Cargo	29,600
Ingalls Shipbuilding Corporation	4 Cargo	35,600
Total:	8 Vessels	65,200

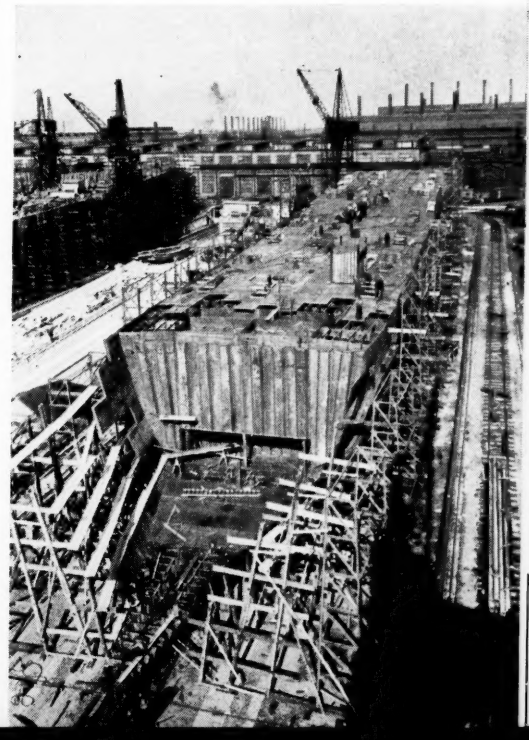
Pacific Coast

Moore Dry Dock Co.	2 Cargo	17,800

Recapitulation

East Coast		
Above Mason and Dixon Line	36 Vessels	309,369
Below Mason and Dixon Line	21 Vessels	211,500
Gulf Coast	8 Vessels	65,200
Pacific Coast	2 Vessels	17,800
Total:	37 Vessels	603,869

Below—One of the large oil tankers under construction at Sparrows Point, Md., by the Bethlehem Steel Company.



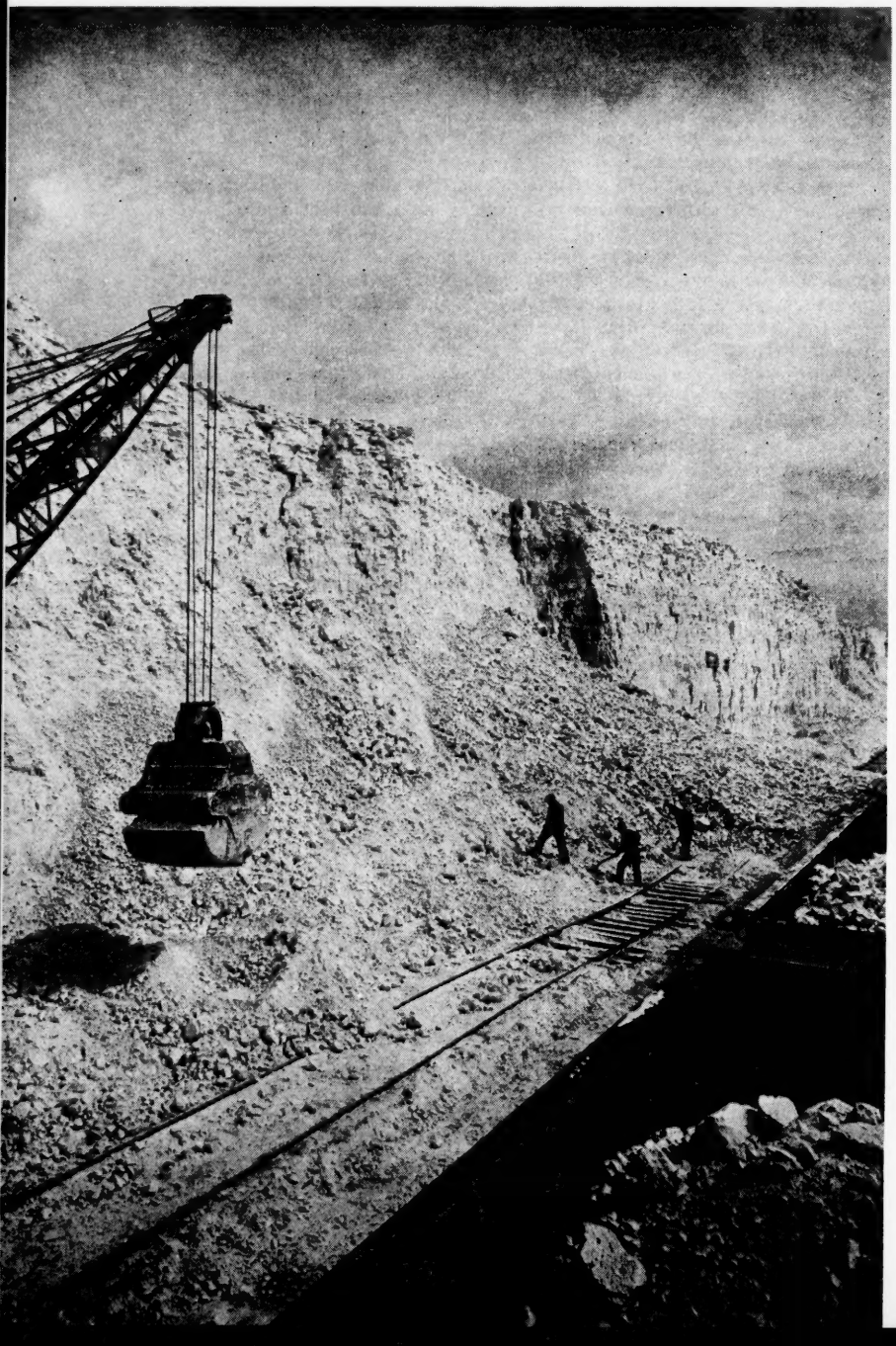
The Increasing Utility Of Sulphur

BY

Langbourne M. Williams, Jr.,
*President, the Freeport Sulphur Company**

OUT of the heart of the deep South, from crevices of limestone deeply buried beneath the coastal plains of Texas and Louisiana, comes a material so widely used by farmers and manufacturers today that statistics of its consumption have come to be regarded as an accurate barometer of business activity throughout the United States. This is sulphur, one of the most versatile of all chemical tools, a processing agent for which new applications are constantly being discovered.

Rarely encountered in recognizable form by the layman, sulphur is nevertheless one of the commonest and most useful of the ninety-two elements which, during the past quarter century, have been so adroitly manipulated by chemists that from activity in U. S. laboratories has stemmed a "chemical revolution" comparable in magnitude to the industrial revolution of the nineteenth century. Occurring in many parts of the world and in many forms, sulphur is mined on the gulf coast by the unique Frasch "hot water" process, development of which has enabled Texas and Louisiana to supply 28 per cent of the sulphur needs of the world today.



This "mountain" is made of 99.5 per cent pure elemental sulphur drawn from limestone crevices underground near Freeport, Texas, by the unique Frasch "hot water" process

This "yellow magic" has for years played a vital and flexible role in the application of chemical research to industrial practices, and in the resultant development of new and improved products and processes, the establishment of new markets. As early as 1912 a U. S. Tariff Board report noted that "several hundred specific uses of sulphuric acid in the chemical, allied and other industries can be enumerated without difficulty and without exhausting the subject, a fact significantly expressive of the all-importance of this most basic of all chemical products." Since 1912, the field of usefulness of sulphur and sulphuric acid has been extended to include production of almost every article in common use.

This development has been of particular significance to the South, which in recent years has witnessed an unusual growth of chemical-producing and chemical process industries, key-noting an era of unprecedented industrial expansion for this region. Southern states acquired $186,326,000 worth of new investments in plants and equipment for these industries in the years 1936 and 1937 alone. This reflects acceleration of a long-time trend, since from 1922 to 1933 the South's share of the nation's chemical industry rose from 22 to 30 per cent.

New nation-wide sulphur-usage developments of the past few years alone, which have brought added economies and efficiencies to both industrial and agricultural operations, serve to illustrate the remarkable versatility of this material. Even a partial survey of these post-1912 developments, with particular reference to expansion of sulphur uses since 1930, reveals that in this period sulphur has aided in the production of new lubricants

*The Freeport Sulphur Company operates sulphur mines at Freeport, Texas, and Grande Ecaille, Louisiana.

and fuels, creation of new fireproof building materials and fabrics, development of better and cheaper textiles, dyes, paints, medicinals, insecticides and fungicides.

The year before publication of the Tariff Board report on sulphuric acid usage witnessed the opening of the first U. S. factory for the manufacture of rayon—a material which, with the help of sulphur, has brought about a tremendous change in the textile industry of this nation. The manufacture of rayon, which has added one more basic fabric to the traditional four—silk, cotton, wool and linen—today constitutes one of the nation's major industries. Annual consumption of rayon in the United States today is more than four times that of silk.

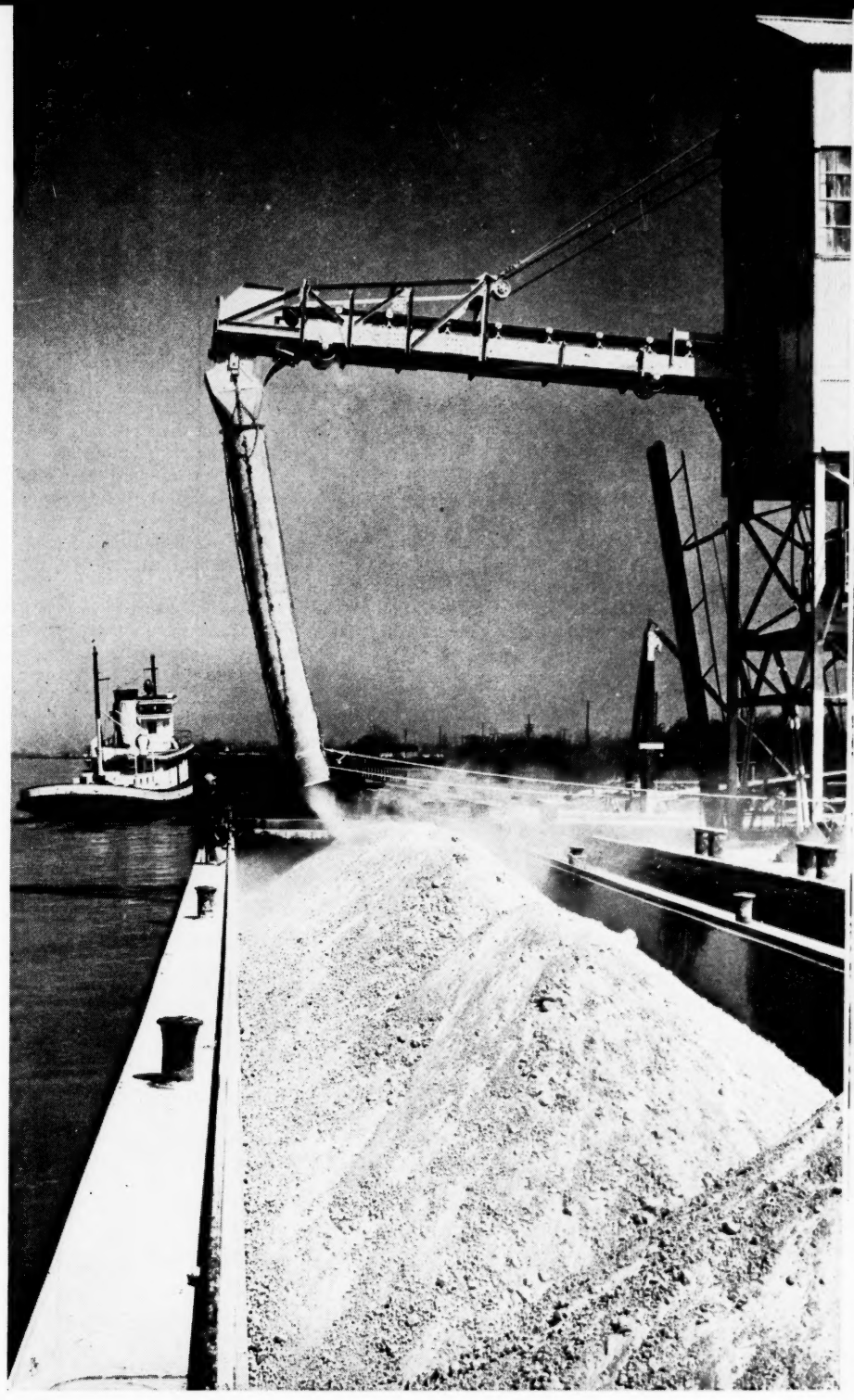
In the preparation of wood cellulose, base material for rayon, a sulphur derivative is used as a processing agent. Another sulphur derivative, carbon bisulphide, converts the cellulose crumbs into viscose, and sulphuric acid is used to harden the viscose threads as they emerge from the rayon spinnerettes.

A wide new field of sulphur-usage was opened in 1930 with establishment of the Thiokol Corporation, which makes a rubber-like material that has superior powers of resistance to oil, grease, and organic solvents. One of the most useful of sulphur plastics, Thiokol is used today for a wide variety of purposes including the manufacture of gasoline and oil hose, buffer units for hose nozzles, machine belt oil-proof jackets, printing plates, pipe joint gaskets and valve seat disks.

Further extensive research on polysulphide rubbers by the Thiokol Corporation has, since 1930, resulted in the development of other oil-resistant rubber-like materials from sulphur. These materials may be hard and resinous, or soft and pliable, according to the chemical formula used in their manufacture. While this latest Thiokol research has not yet resulted in the commercial production of new materials, many potential uses for the products were pointed out at a recent meeting of the American Chemical Society.

A further extension of sulphur's long-known value in the manufacture of dyes was marked early in 1938 by the development of a new sulphur dye by E. I. duPont de Nemours. A recent contribution to the manufacture of sulphur colors, this dye is in the form of hard, shiny flakes or grains and is substantially free from disadvantages — such as insolubility, dustiness, and tendency to spontaneous combustion—which had hampered development of the sulphur dye industry.

Sulphuric acid has, of course, always been an essential processing agent for the nation's established dye industry. This industry alone would give the acid a high rating on a list of the nation's vital materials, since the use of dyes extends to the textile, agricultural, food products, pharmaceutical, perfume, explosives, leather and rubber industries.



Loaded aboard barges at the Grand Ecaille, La. plant of Freeport Sulphur Co., the sulphur is transported to Port Sulphur on the Mississippi for transhipment on ocean going vessels to northern U. S. ports and abroad

Fire-proofing of fabrics, paper and other combustible materials on a large scale was facilitated in 1938 through the development of E. I. duPont de Nemours of "sulfamic acid" from urea and sulphuric acid. At San Francisco's Golden Gate Exposition, the first World's Fair using flame-proofed fabrics throughout, over 200,000 yards of textiles and other materials have been treated with ammonium sulfamate, salt of this new sulphur derivative. Sulfamic acid possesses other characteristics which forecast its use in leather tanning, control of soil acid, and as a fodder preservative.

Dilute sulphuric acid has long been

(*Continued on page 52*)

Manufacturing in the South

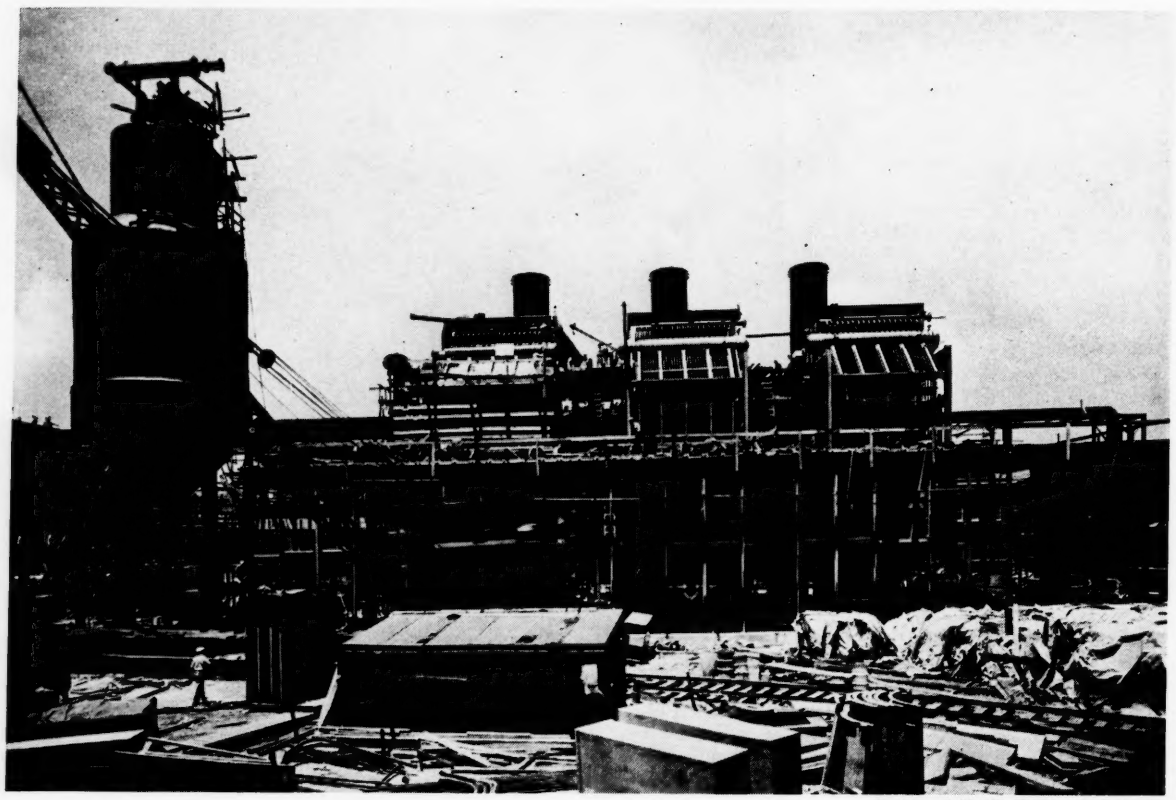
MANUFACTURING in the South has made remarkable strides in the past few decades. More recently the growth has been phenomenal, specifically within the past five or six years, due, in large measure, to the chemical and other technological advancements in industry generally, wherein it has become evident that utilization of the South's vast supply of raw materials are eminently suited for the production of present-day commodities, such as Southern pine for paper.

The recent publication, covering manufactures, by the U. S. Bureau of the Census in the 1937 biennial census shows that the number of establishments in the South with an output in excess of $5,000 annually is 34,946, an increase of 803 since the previous census covering 1935. In comparison, the number of establishments in the rest of the country declined 3,120 during the same period. The value of Southern manufactured products totaled $11,454,794,098 in 1937 against $8,468,215,718 in 1935, an increase of almost 35 per cent. Great as this increase is, it is not an adequate picture of manufacturing in the South at present, because a large number of the new establishments built in the last two-year period, 1935-1937, either had not gone into production or had only been operating a short time so that the value of their products were not included in the 1937 figures. There can be little doubt that, since these census figures were compiled, the number of establishments has grown still further while the value of manufactured products is even more marked than was the case in 1937.

The number of employees increased similarly and 232,559 more were employed in 1937 than in 1935, increasing the year's payroll to the amount of $343,597,000 over 1935 and making a total of $1,565,545,722 for 1937. The cost of materials, fuel, electric energy and contract work was $7,230,456,000 in 1937, an increase of $1,818,994,000 over the comparable figure for 1935.

On the opposite page are grouped together, under numerous heads, the many different classifications of industrial endeavor separately classified by the Census Bureau in 1937. From these figures, it will be seen readily the extent of the various industries in the South. Unfortunately, however, the comparison between the South and the rest of the country is not accurate because, in many instances, the state reports from which the southern figures were compiled did not include the figures for any industry represented by less than three establishments. In other words, under the heading of "iron, steel, and metal work," it is not possible to include for the South the figures for the large steel mills operating in Maryland, Alabama and West Virginia although the same figures are included proportionately in those for the rest of the country. Other instances which fail to identify the extent of many southern industries are copper smelting, of which the largest plant in the world is located in Maryland, while one of the largest shipbuilding plants in the United States is in Virginia; yet, in neither case are the figures for these establishments included in their respective classifications. Instead, they are lumped together and included with minor industries under the general heading "other industries."

The new boiler house and power plant being constructed for a large Petroleum refinery at Port Arthur, Texas.



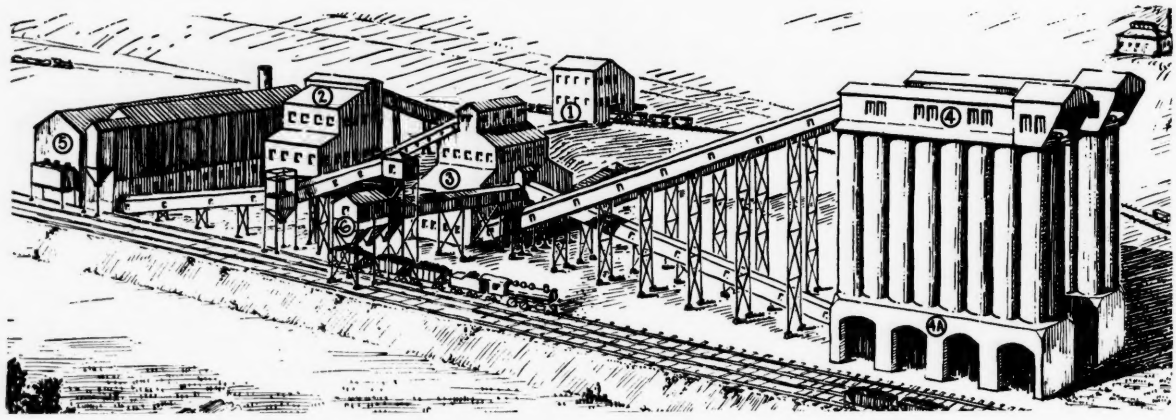
Courtesy of Merritt-Chapman & Scott Corp.

Southern Manufacturing in 1937

Number of Establishments, Value of Products, Wages, and Employees in comparison with the rest of the United States.

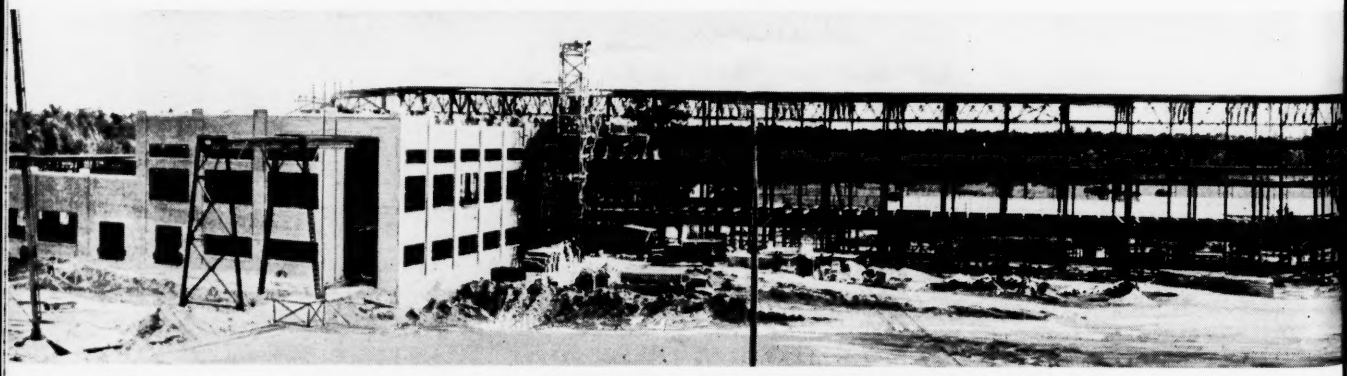
Kind of Manufacture	SOUTH					REST OF THE UNITED STATES				
	Number of Establishments	Number of Employees	Wages (add 000)	Cost of materials, containers, fuel and purchased electric energy (add 000)	Value of Products (add 000)	Number of Establishments	Number of Employees	Wages (add 000)	Cost of materials, containers, fuel and purchased electric energy (add 000)	Value of Products (add 000)
Beverages	1,694	24,437	$28,865	$122,069	$265,270	2,516	28,274	$98,586	$361,390	$848,894
Boots and shoes	118	39,896	34,036	76,894	167,523	1,432	194,297	175,113	435,399	733,464
Canning	920	36,756	12,639	76,966	115,108	2,177	118,537	88,704	470,323	752,228
Cars, electric and steam with repairs	24	4,080	5,526	17,691	26,567	130	36,386	53,749	208,812	298,754
Cement	29	4,949	5,440	12,241	34,332	129	21,477	28,629	57,737	148,869
Chemicals, drugs and sundries	661	24,186	29,025	121,079	286,467	3,331	130,959	178,763	814,603	1,766,621
Clay products	389	25,367	21,484	20,383	62,195	1,060	67,278	74,729	56,843	195,791
Clothing	1,393	250,665	116,574	263,474	471,487	10,759	524,491	549,518	1,464,994	2,534,951
Coke-oven products	11	2,337	2,739	17,404	24,600	83	18,266	30,362	255,662	332,867
Concrete products	233	3,160	2,758	9,346	17,910	1,148	9,680	11,031	26,106	59,263
Cottonseed oil, cake and meal	427	15,639	7,788	182,749	224,225	20	944	742	12,997	17,817
Feeds for animals and fowls	213	3,529	2,824	69,636	86,577	913	10,868	13,014	268,868	328,633
Fertilizers	527	15,605	9,700	91,250	134,669	216	5,288	5,664	38,830	61,089
Flour and other grain mill products	910	8,798	8,078	207,215	242,793	1,328	17,592	22,107	515,495	613,516
Food and food preparations	4,588	70,705	67,977	414,350	616,200	25,526	314,397	419,083	1,990,644	3,161,959
Furniture, also ratan and willow	553	49,097	37,157	73,837	147,310	2,738	130,283	140,526	241,430	527,806
Glass	67	15,735	19,600	25,164	66,055	165	63,316	81,987	115,530	321,654
Heating and cooking apparatus (except electric)	94	11,476	10,609	16,045	38,348	736	77,811	101,179	144,059	400,936
Ice, manufactured and ice making equipment	2,122	9,422	12,113	15,628	64,183	2,005	59,906	80,861	207,204	436,147
Iron, steel, and metal work	855	44,439	50,852	164,540	281,875	5,600	34,624,221	1,211,295	3,216,297	5,652,011
Leather and allied products (not shoes)	120	6,039	5,360	33,953	47,060	467	63,782	73,882	305,118	451,969
Lumber and timber products	5,668	214,706	125,402	230,047	489,173	6,692	237,988	267,911	404,044	885,827
Machinery (electric) and supplies	132	12,198	13,631	34,387	73,003	1,769	267,205	367,245	664,072	1,664,190
Machinery and machine shops	1,051	33,115	42,796	77,255	215,200	6,773	484,640	731,262	1,209,330	2,951,615
Marble, granite, slate, lime, etc.	405	9,721	8,472	10,228	28,654	1,201	20,846	25,519	30,407	85,373
Non ferrous-metal alloys and products (except aluminum)	84	2,950	3,353	16,437	27,240	1,019	80,066	112,161	376,245	642,130
Packing plants	443	24,568	26,697	378,077	446,289	2,036	121,164	160,991	2,214,849	2,596,507
Paints, pigments, and varnishes	171	4,360	4,868	38,406	67,551	953	27,304	37,882	273,678	470,909
Paper, paper products, and pulp	273	25,266	26,181	131,099	213,187	2,645	230,454	270,680	1,052,841	1,794,372
Petroleum refining	136	32,375	51,222	827,805	1,003,197	229	50,807	89,191	1,236,501	1,543,554
Pipe and fittings, cast iron	29	9,414	8,744	12,568	30,578	46	8,199	9,338	12,873	30,539
Printing and publishing	4,216	47,023	63,299	88,594	313,233	15,615	229,560	353,630	587,997	1,892,592
Rice cleaning and polishing	44	1,531	839	25,159	30,200	17	687	516	13,656	16,652
Ship and boat building	77	8,773	10,887	12,183	31,452	467	53,471	82,859	89,227	219,004
Sugar refining, cane	7	3,181	2,226	64,153	75,463	16	10,843	13,746	298,499	349,167
Textiles	985	396,345	291,444	734,659	1,296,589	1,492	263,371	247,343	510,621	983,395
Tobacco and tobacco products	105	35,880	29,557	677,937	878,406	747	56,278	41,734	269,691	394,281
Turpentine and rosin	989	1,493	347	22,475	28,743	4	13		2	281
Wood preserving	61	6,329	4,962	28,663	45,329	196	10,539	10,399	67,348	97,515
Woolen woven goods	24	6,562	5,247	13,593	23,654	308	55,369	57,350	158,460	265,094
Other industries	4,171	329,247	339,920	1,755,295	295,286	16,705	801,668	1,063,421	2,680,090	6,240,614

Coca Cola Company's big new bottling plant shown above is one of several industrial plants now under construction in a northern section of Baltimore. The building contains almost 95,000 square feet of floor space. It is of brick and concrete construction trimmed with Indiana limestone. Its design is such that its present capacity of three bottling machines may be tripled. Offices and bottling room are located in the multi-story front of the structure, with the distributing area at the rear. John Deere Plow Co. is erecting its large warehouse nearby, while the International Harvester Co. has work well along on a $100,000 warehouse addition to the South.



A central ore conditioning and sintering plant is to be installed by the Tennessee Coal, Iron & Railroad Co., Alabama subsidiary of United States Steel, as the result of intensive studies for increasing efficiency of operations preliminary to the blast furnace process. Construction is starting on the plant shown above with completion scheduled last in 1940, when crushing at individual mines will be discontinued. Shown in the illustration are the important units in the new plan, which includes (1) Car dump and preliminary crushers; (2) secondary crushers; (3) screening and sampling plant; (4) silos for ore storage (4A) feeders for mixing ore; (5) sintering plant; (6) loading bins. No. 7 shows the Wenonah mine, adjacent to which the plant is being built.

Southland Paper Mills, Inc., Lufkin, Texas, now has under construction the $6,000,000 mill shown below. The buildings will cover five acres of a 240-acre site and require 1,000,000 brick, 1,000,000 board feet of lumber, 15,000 barrels of cement and 1,700 tons of structural steel in their erection. One of the faster paper machines ever built will be installed. To have a new type Fourdrinier frame, this machine will be capable of annually producing 50,000 tons of 14-foot wide paper for newspaper publishers. It is expected that the final shipment of parts will be made by the end of August and operation of the plant started by the end of this year. Southern newspaper publishers have contracted to take the mill's production for the first five years and also have subscribed a substantial amount to the newsprint company's capital fund. Merritt-Chapman & Scott Corp., New York, are the contractors; Pusey & Jones, of Wilmington, Del., are building the paper machine.



Construction Total is $452,480,000 in Southern States for Past Six Months

First Half of 1938 topped by 31 percent

Contracts in June drop

CONTRACTS awarded in the South during the first six months of this year have mounted to the largest figure for any similar period within the last nine years, according to a survey of projects as published in *Construction's* daily bulletin. The total of $452,480,000, to which June contributed $59,004,000, is larger by one-third than the figure for the first six months of last year. Its advance over the totals for comparable periods of other years is much greater.

Private contracts, as tabulated by *Construction*, are more than one-tenth below the level reached during the first half of 1938. Public work, however, is almost three-quarters ahead of what it was at this time last year. Much of this amount is due to the tremendous sums the Federal Government has been pouring into public works and buildings, rural electrification and publicly owned power developments.

Courtesy of Merritt-Chapman & Scott Corp.

Road and bridge construction totaling $93,697,000 for the first six months, is slightly ahead of that in the same period of last year, this type of work having maintained a greater stability than any other phase of the construction field. Mississippi and Texas have led the field with programs showing awards totaling $17,000,000 and $15,000,000, respectively. Among other active States are Maryland, Alabama, Virginia and West Virginia.

The $16,460,000 sewer and water works total is well over the figure for the similar period of last year. Included in the Southern cities improving either their water supplies or their sanitary and drainage systems are: Washington, D. C., Miami, Fla., Clearwater, Fla., Atlanta, Ga., Lexington, Ky., Baltimore, Md., University City, Mo., Wilson, N. C., Greenville, S. C., Spartanburg, S. C., Dallas, Tex., Houston, Tex., and Richmond, Va.

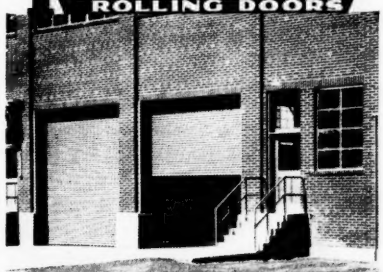
Other heavy Governmental construction, such as dams, harbor, levee and airport improvements has almost trebled. The aggregate for the first six months of this year is $30,847,000. Many huge projects of this kind are now under way in the South. The Hiwassee and Chickamauga dams are well under construction by the Tennessee Valley Authority, which is preparing to start at Gilbertsville and has scheduled the Watts Bar work for the not distant future.

Grand River Dam Authority's $20,000,000 project on the Grand River, the Great Salt Plains and the Fort Supply dams are three of Oklahoma's big jobs. The $12,000,000 Marshall Ford dam and the $54,000,000 Denison project, for which big Congressional appropriations have been made — $5,000,000 for raising the height of the one and a similar amount for starting work on the other—and the $3,500,000 Possum Kingdom dam on the Brazos River are located in Texas. The United States Engineers are now going forward with the $14,000,000 Sardis dam in Mississippi. Wappapello dam, on which work is under way in Missouri, will cost almost $22,000,000.

The Santee-Cooper development is being constructed in South Carolina. A $4,172,000 unit of this project is now being built, with bids to be opened August 1 on the $5,500,000 Santee diversion dam. Work is also progressing on the $5,000,000 Buzzard Roost project in Greenwood County, South Carolina. High Point,

(*Continued on page 36*)

KINNEAR
ROLLING DOORS



"...and fire repellent."

KINNEAR STEEL ROLLING DOORS GIVE REAL SIGNIFICANCE TO THOSE THREE WORDS.

For in addition to all the advantages of smooth, easy, space-saving upward action, they are constructed throughout of fire-resistant materials. Though primarily for service use, their heavy, steel curtain affords a degree of fire protection.

Kinnear Doors also operate with maximum efficiency in the minimum amount of space. They open upward on a vertical plane, coiling compactly above the opening. They are rugged, heavy-duty doors, always custom-built for easy, accurate, economical installation. Ideal for warehouses, wharves, piers, and all other industrial and commercial uses. End your door problems with Kinnear Rolling Doors. Write today for details.

Fireproof

Wherever Fire Safety is a major problem, Kinnear "Akbar" Fire Doors — similar in operation and appearance to the doors described above — provide positive, automatic protection against fire. Approved and labeled by the National Board of Fire Underwriters, their automatic closure is thoroughly controlled for complete safety at all times. Send for complete information.

The KINNEAR Mfg. Co.
1600-20 Fields Ave., Columbus, Ohio
Offices and Agents in all Principal Cities
Factories: Columbus, O.; San Francisco, Cal.

Construction Total is $452,480,000 in Southern States for Past Six Months

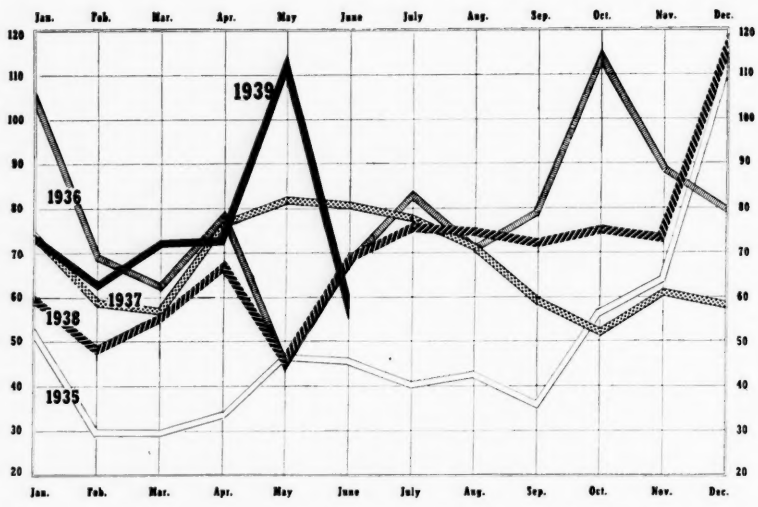
(*Continued from page 35*)

N. C., is doing the preliminary work on a $6,500,000 municipal hydroelectric plant on the Yadkin River.

Industrial construction during this year has not assumed the proportions of the same period of 1938, although removal of the excess profits tax is hoped to encourage expansion of manufacturing facilities. There have been however many important additions proposed, started or completed in Southern industry since January 1.

One of the latest to be announced is an improvement for the Alabama properties of the Tennessee Coal, Iron and Railroad Co., a United States Steel subsidiary. This company is starting construction of a central ore conditioning and sintering plant at Wenonah, Ala. Crushing ore at the individual mines will be discontinued and a new system of coordinated conditioning is to be installed.

Active steps were taken during June for getting the $1,500,000 plant under construction at Clarksville, Tenn., for the B. F. Goodrich Co. Bids are to be opened July 12. To contain 200,000 square feet of floor space, this plant will include an 800 by 200-foot main building, a power plant and a garage. Award of the contract for the $2,000,000 National Biscuit plant at Atlanta, Ga., is scheduled to take place soon. Announcement was also made during last month that a $1,500,000 addition would be constructed at Charleston, W. Va., by the Union Carbide and Carbon Corp. for increasing facilities to make synthetic resin.



Southern Construction by months in millions of dollars

Arkansas Power and Light Co. expects soon to start work on construction of its $6,000,000 project on the upper Ouachita River. This project, which is to include flood control features, will be 175 feet high and back water up over 35,000 acres northwest of Hot Springs. Duke Power Co. has its $7,500,000 Cliffside, N. C., development under construction and Virginia Electric Power Co. and Consolidated Gas, Electric Light and Power companies are going ahead with projects costing over $3,000,000.

High spots in the paper field are the two mills now under construction in Alabama and Texas. Hollingsworth & Whitney Co., manufacturers of white paper, are erecting the Alabama plant at Mobile. This is the deep South's first plant of its kind. At Lufkin, Tex., the Southland Mills are now rushing construction on the South's first newsprint mill at a cost of $5,000,000. The Ecusta Paper Corp. is now finishing its $2,000,000 cigarette paper plant at Brevard, N. C. This is the first in the country and will make the paper from North Carolina flax.

Celanese Corporation's $10,000,000 plant at Pearisburg, Va., is the outstanding one under construction in the chemical field. E. I. du Pont de Nemours & Co., American Viscose, Glenn L. Martin Co., Electro Metallurgical Co., Newport News Shipbuilding & Dry Dock Co., American Cyanamid & Chemical Corp., Bethlehem Steel Co., are but a few of the prominent names active in the construction field during the last six months.

Statistics of South's Construction

	Contracts Awarded	Contracts to be Awarded	Contracts Awarded First Six Months 1939
	June 1939		
PRIVATE CONSTRUCTION			
BUILDING			
Assembly (churches, theatres, auditoriums, fraternal)	$2,228,000	$1,959,000	$9,033,000
Commercial (stores, restaurants, filling stations, garages, etc.)	2,920,000	3,152,000	15,143,000
Residential (apartments, hotels, dwellings)	10,546,000	4,699,000	52,473,000
Office	699,000	622,000	11,997,000
	$16,393,000	$10,432,000	$88,646,000
INDUSTRIAL	$5,138,000	$13,029,000	$47,889,000
PUBLIC CONSTRUCTION			
BUILDING			
City, County, State, Federal	$7,041,000	$14,862,000	$71,051,000
Housing	4,684,000	21,905,000	26,859,000
Schools	5,150,000	19,980,000	44,794,000
	$16,875,000	$56,747,000	$142,704,000
ENGINEERING			
Dams, Drainage, Earthwork, Airports	$2,262,000	$9,068,000	$30,847,000
Federal, County, Municipal Electric	3,407,000	13,082,000	32,237,000
Sewers and Waterworks	1,892,000	7,361,000	16,460,000
	$7,561,000	$29,511,000	$79,544,000
ROADS, STREETS AND BRIDGES	$13,037,000	$56,650,000	$93,697,000
TOTAL	$59,004,000	$166,369,000	$452,480,000

NEW INDUSTRIAL PLANTS AND EXPANSIONS OVER $100,000 IN THE SOUTH, JANUARY TO JUNE, 1939

JANUARY

Location	Project	Expenditure	Owner
Atlanta, Ga.	Tire Reconditioning, Sales Service Plant	$ 100,000	Brooks-Zuker Tire & Manufacturing Co.
Port Arthur, Tex.	Polymerization Unit Reconstruction		Atlantic Refinery Co.
Oklahoma	Iron and Supply Works Modernization	600,000	Bethlehem Steel Corp.
St. Louis, Mo.	Office, Laboratory	100,000	Cole Chemical Co.
Georgia	Mill Addition at Cedartown, Cartersville		Goodyear Tire & Rubber Co.
Columbus, Ga.	Mill		Muscogee Mfg. Co.
Magnolia, Ark.	Pipeline		Dixie Pipeline Co.
Arkansas	Power Dam and Flood Control Project	8,000,000	Arkansas Power and Light Co.
Chattanooga, Tenn.	Water Terminal	100,000	Jones & Laughlin Steel Corp.
Lake Charles, La.	Building, Substation Improvements	150,000	Gulf States Utilities Co.
Pearisburg, Va.	New Plant	10,000,000	Celanese Corporation of America
Miami, Okla.	Plant	100,000	Barnsdall Tripoli Corp.
Weirton, W. Va.	Chemical, Metallurgical Laboratory	250,000	Weirton Steel Co.
New Orleans, La.	Garage, Office	155,000	Teche Greyhound Lines
Ashland, Ky.	Tipple Dock		Ford Coal Co.

FEBRUARY

Jasper, Ala.	Hosiery Mill		Homestead Mfg. Co.
Charlotte, N. C.	Expansion Program	100,000	Southern Bell Telephone Co.
Nashville, Tenn.	Exchange	790,000	Southern Bell Telephone and Teleg'h Co.
Belle, W. Va.	Nylon Plant	2,000,000	E. I. du Pont de Nemours
Houston, Tex.	Warehouse	230,000	Bethlehem-International Supply Co.
St. Louis, Mo.	Building, Fermentation Cellars, Conveyor	300,000	Columbia Brewery
Mobile, Ala.	Paper Mill	5,000,000	Hollingsworth & Whitney Co.
Dallas, Texas	Building	100,000	Link-Belt Co.
Dallas, Texas	Furniture Plant	250,000	Krochler Mfg. Co. (have picture)
Houston, Tex.	Plant	100,000	Parker Brothers, Inc.
Jackson, Ala.	Hosiery Mill	600,000	City (for lease) ?
Towson, Md.	Weather Instruments	500,000	Julien P. Friez & Sons
Baltimore, Md.	Plant Addition	3,000,000	Glenn L. Martin Co.
Memphis, Tenn.	Plant Addition	350,000	Commercial Appeal
Levelland, Tex.	Refinery	200,000	Motor Fuels Corp.
West Point, Va.	Recovery Room Unit	250,000	Chesapeake-Camp Mfg. Co.
Durham, N. C.	Power Plant Addition	200,000	American Tobacco Co.
Rome, Ga.	Shed Addition		Tubize Chatillon Corp.

MARCH

Georgia	Distillery	250,000	W. Frank Upchurch and Associates.
Richmond, Va.	Factory, Power House		U. S. Tobacco Co.
Lufkin, Tex.	Newsprint Mill	6,000,000	Southland Mills, Inc.
Roanoke, Va.	Acid Recovery Plant, Filter	160,000	American Viscose Corp.
Georgetown, S. C.	Dredging		Southern Kraft Corp.
Baltimore, Md.	Soap Plant Addition	110,000	Lever Bros. Co.
Graham, N. C.	Finishing Mill Addition		Travora Manufacturing Co.
Alabama	Phosphate Blast Furnace	450,000	Tennessee Valley uthority
Houston, Tex.	Natural Gasoline Plant	250,000	Del Ray Petroleum Co.
Plymouth, N. C.	Plant Addition	800,000	North Carolina Pulp Co.
Columbus, Ga.	Mill Group Addition		Swift Manufacturing Co.
Muscle Shoals, Ala.		5,000,000	Electro-Metallurgical Co.
Pensacola, Fla.	Building to House Equipment	200,000	Newport Industries
Pascagoula, Miss.	Construct 3 Ship Ways		Ingalls Iron Works Co.,
Newport News, Va.	Plant Expansion	1,000,000	Newport News Shipbuilding & Dry Dock Co.
Baton Rouge, La.	Electrical Lines	200,000	Gulf States Utility Co.
Atlanta, Ga.	Bakery	2,000,000	National Biscuit Co.
Athens, Ga.	Plant Addition	100,000	Athens Manufacturing Co.
Pulaski, Va.	Mill Building	150,000	Acme Hosiery Dye Works
Washington, D. C.	Erect Bus Terminal	275,000	Greyhound Lines
Elkins, N. C.	Plant Addition	500,000	Chatham Manufacturing Co.
Brooksville, Fla.	Castor Bean Plant	165,000	Woburn Industries - Farm Bureau
San Antonio, Tex.	Airplane Factory	200,000	American National Aircraft Corp.
Port Arthur, Tex.	Power Station	1,000,000	Texas Company
Alabama	Improvement Program		Tennessee Coal, Iron & Railroad Co.

APRIL

Richmond, Va.	Plant Addition		Continental Baking Co.
Louisiana	Construction Program	500,000	Continental Oil Co.
Winston-Salem, N. C.	New Unit	300,000	Hanes Hosiery Mills
Follansbee, W. Va.	Benzol Refinery		Wheeling Steel Co.
Huntington, W. Va.	Coal Tipple	360,000	American Rolling Mill Co.
Texas	Natural Gasoline Plant		Warren Petroleum Corp.
Panama City, Fla.	Warehouse	200,000	Atlanta & St. Andrews Bay Railway Co.

MAY

Baltimore, Md.	Power Plant Extension	3,600,000	Consolidated Gas, Electric Light & Power Co.
Houston, Tex.	Warehouse	250,000	Bethlehem-International Supply Co.
Weslaco, Tex.	Gas Repressuring, Casinghead Plant	1,000,000	Atlantic Refining Co.
Houston, Tex.	Buildings	150,000	Pittsburgh Plate Glass Co.
Cedartown, Ga.	Plant		Goodyear Tire & Rubber Co.
Belcamp, Md.	Shoe Plant		Bata Shoe Co.
Clarksville, Tenn.	Rubber Goods Plant	1,500,000	B. F. Goodrich Co.
Norfolk, Va.	Building	100,000	Nolde Bros.
Christiansburg, Va.	Milk Plant	100,000	Southern Dairies
Nitro, W. Va.	Addition		American Viscose Corp.
Lake Charles, La.	Steel Barrel, Drum Plant	100,000	Wackman Welded Ware Co.
Durham, N. C.	Building		American Tobacco Co.
Baltimore, Md.	Addition	1,000,000	Rustless Iron & Steel Corp.
Tulsa, Okla.	Refinery Addition	800,000	Mid-Continent Petroleum Corp.
Middletown, Va.	Quarry, Lime Plant	250,000	M. J. Grove Lime Co.
Richmond, Va.	Plant		U. S. Tobacco Co.

JUNE

Atlanta, Ga.	Assembly Plant		Chevrolet Motors Co.
Asheville, N. C.	Bottling Plant	125,000	Coca Cola Bottling Co.
New Orleans, La.	Auto Service Station	120,000	United States Tire Supply Co.
Atlanta, Ga.	Bakery and Office Bldg.	1,000,000	National Biscuit Co.
Charlestown, W. Va.	Plant Addition	1,500,000	Union Carbide & Carbon Corp.
Texas	Iron Ore Plant	250,000	Surface Combustion Corp.
Birmingham, Ala.	Ore Conditioning, Sintering Plant		Tennessee Coal, Iron & Railroad Co.
St. Louis, Mo.	Oilwarehouse, Garage	125,000	Socony-Vacuum Oil Co., Inc.
St. Louis, Mo.	Bulk Plant	125,000	Socony-Vacuum Oil Co., Inc.
Center, Tex.	Pipeline	133,000	Por-Tex Oil Co.
Atlanta, Ga.	Additions, Improvements	186,500	Atlanta Terminal Co.

Iron, Steel and Metal Market

STEEL operations were at 54.3 per cent of capacity for the last week of June. The outlook does not promise much increase in rate of output in the immediate future, but fall operations are expected to show larger production as new automobile models add to production by the motor industry.

Scrap metal registered a slight decline in price notwithstanding continued large purchases from abroad. The proposal in Congress to place foreign shipments on a quota basis which would apply a percentage to various countries according to average purchases over a period of years, has yet to be acted upon.

Reports from the United States Bureau of Foreign and Domestic Commerce state that during 1938 there were shipped through the Port of Mobile to Japan 34,493 tons of scrap iron and steel valued at $589,334. During the same period there were shipped from the Birmingham District, through Mobile, approximately 297,700 tons of pig iron to Japan, valued at $4,637,535.

Efforts are continued to get prices on a more stable basis in the light of the adverse effect on profits that has resulted from price cutting.

Railroads, some of which have reported better revenue figures of late, may be expected through increased buying to contribute to an increase in steel output before long.

Private building lags, however, and until the situation improves the construction industry cannot be expected to add largely to steel orders.

Prepared for Larger Business

In the meantime while general business hesitates, the backlog of demand created by depreciation grows and the steel industry as a whole, from the standpoint of plant condition and economy of operation, is in a better position than ever before to take care of increased business.

Birmingham operations are practically unchanged at 71 per cent of capacity in steel and thirteen of the district's sixteen blast furnaces are turning out pig iron. The continued high rate of steel production at this Southern center, which has been uniformly in advance of the balance of the country for some time past, reflects the demands of the growing markets of the South as well as the quality of the output. The benefit gained by the abolishment of "Pittsburgh Plus" in steel pricing also is not to be overlooked.

The American Institute of Steel Construction announced that new orders for fabricated structural steel booked during May were the largest for any month this year. For the first five months of 1939 new orders totaled 553,252 tons as compared with 390,201 during the same five months of last year.

The bridge across the Raritan River will likely take 9,240 tons of shapes, besides 4,500 tons being required for an administration building at Washington. The New England Mutual Life Insurance Co. building at Boston will require 2,100 tons of reinforcing steel. Bethlehem Steel Co. has booked an order for 2,400 tons for a Delta, California, bridge: Carnegie-Illinois Steel Corporation received an order for 1,700 tons of reinforcing steel for a sewage plant at Gary, Ind.

The United Engineering and Foundry Co. have announced orders running into several millions for steel-mill equipment from two Japanese firms, one being for an 86-inch semi-continuous plate mill.

Steel Facts announces that since 1926 the steel industry has dismantled a total of 173 blast furnaces, 39 plants for producing steel ingots, and 144 plants for producing iron and steel finished products.

Employment Greater Than 1926

Notwithstanding the vast sums spent for labor saving equipment and the construction of more efficient modern facilities, there has been brought about, instead of a decrease in employment, an increase, the number of men at work today being substantially higher than in 1926. The number of men employed in companies operating continuous mills increased 28 per cent between 1926 and 1937, while employment in companies producing sheet and strip steel on conventional mills increased 25 per cent over the same period.

Labor's share of the steel dollar in 1938 was 40½ cents, or 14 per cent over 1929 when it was 35½ cents.

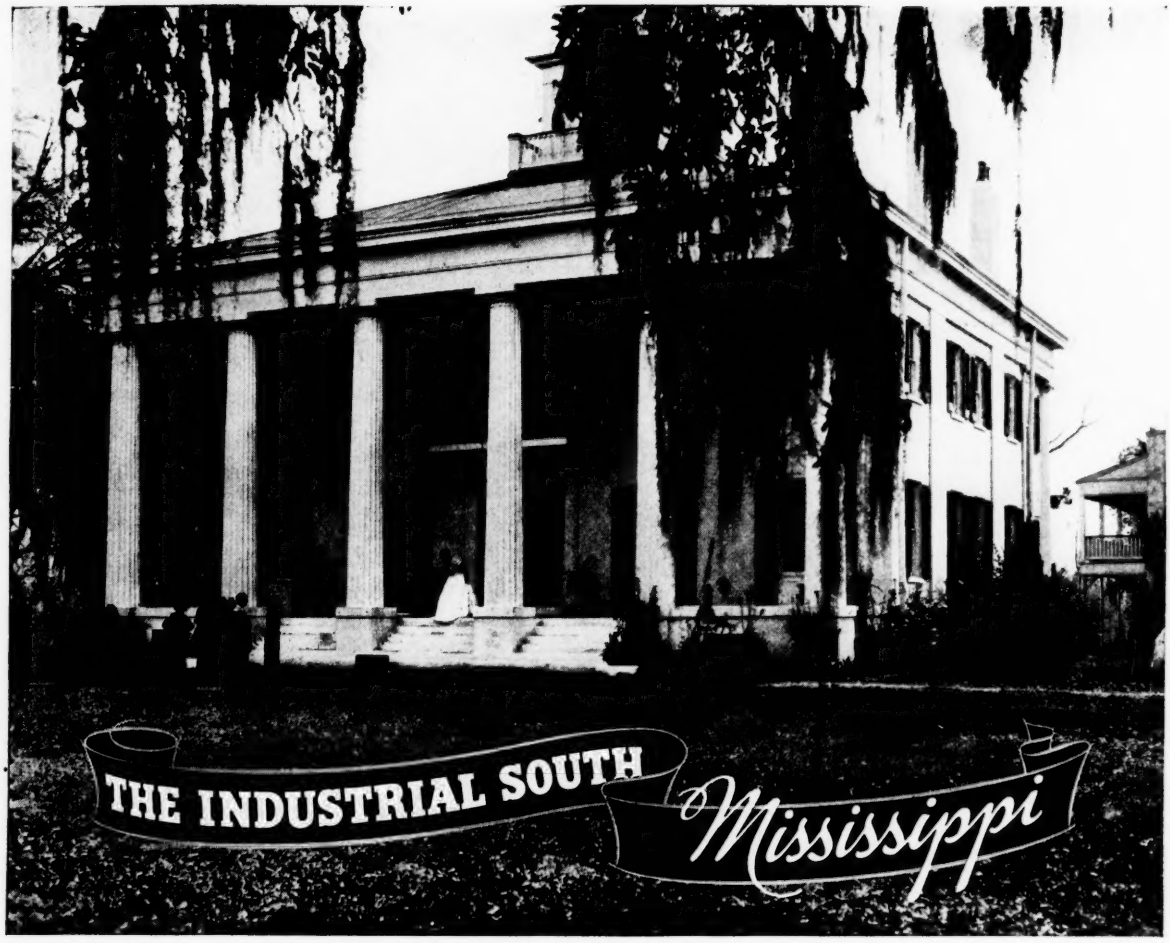
Excluding scrap, exports of iron and steel, according to the Bureau of Foreign and Domestic Commerce, totaled 147,760 gross tons in May which was 4 per cent smaller than figures for April. This brought the exports of iron and steel for the first five months of 1939 to a total of 733,307 tons, compared with 967,397 tons in the first five months of 1938.

Canada was the chief buyer of these products in May, and Sweden was next. Third place went to Japan, which brought 12,432 tons.

Further figures released by the Bureau disclosed that during the first five months of 1939, 1,390,064 tons of scrap iron were exported, which was 300,000 tons less than the comparable period of 1938. Japan was the leading buyer of scrap in May.

Reduction In Wages

The Granite City Steel Co., Granite City, Illinois, has reported an agreement with its employes for reduction in wages beginning July 1. Those working on new mills and receiving above the 62½ cents an hour minimum rate, will be reduced from 2 per cent to 5 per cent. Those on old type mills will receive reductions from 10 per cent to 12 per cent. The labor cost on the latter mills being a larger item than on modern equipment, accounts for the greater reduction in wages. The company does not expect to sell at lower prices as a result of the cut, but to reduce losses. The significance of this agreement will not be overlooked by other manufacturers, some of whom have already been able to obtain agreements for wage reductions, but the Granite City Steel Co. is believed to be the first organization with modern equipment to reduce wages on the new continuous mill.



The old joins hands with the new

MISSISSIPPI has notably succeeded in retaining the atmosphere of antebellum days without losing step with modern progress. The annual garden club pilgrimages to Natchez have in recent years reminded Americans from both the North and the South of the South's heritage of traditions in addition to her contributions from many sources to the national wealth and prosperity.

Because of her heavily timbered long-leaf pine lands, Mississippi has long ranked high as a lumbering state and is now moving into a position of increased importance as a producer of natural gas, cottonseed oil products and textiles. In fact, Mississippi, where the past has been so notably preserved, is in step with the rest of the South in an industrial development made possible by rare advantages of climate and natural resources. Bethlehem Steel Company is contributing to the industrial development of Mississippi and other Southern states through the facilities of the Maryland Plant at Sparrows Point, near Baltimore, and through the diversity of steel products this company is providing Southern industry.

Did you know?

That the population of Jackson, now estimated at 60,000, has almost trebled since 1920.

That horse collars, salad dressing, blotting paper, roofing, camera films and phonograph records are made wholly or in part from the by-products of Mississippi's cottonseed oil mills.

That Mississippi composition board contributes to the comfort of passengers on the *Queen Mary* and that visitors to Atlantic City tread on Mississippi yellow pine planks in the Atlantic City Boardwalk.

That in Mississippi 118,000 children are carried daily in nearly 5000 busses to 1000 consolidated rural schools.

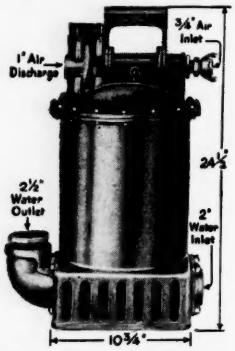
BETHLEHEM STEEL

BETHLEHEM STEEL COMPANY

New Ways of Doing Things

Portable Air-Operated Sludge Pump

A circular issued by Chicago Pneumatic Tool Company of New York City presents brief details of a new development in the compressed air field—an air-operated sludge pump. This new unit works on the ejector principle. Compressed air flows through the air inlet until a float valve in the drum shuts off the air discharge. The air is then forced into the drum instead of out the air discharge, and the pressure thus created forces the water out of the water discharge. This gives a pulsating flow much the same as a hand pump. Advantages claimed for the pump are: high lift capacity; low air consumption; ability to handle up to 15 per cent of solids and to handle water containing sand or rock drill cuttings without causing rapid wear of expensive replacement parts. Its applications are: mine shaft or winzes, coffer dam, caissons, sumps, pits, construction jobs, etc.



Air-Operated Sludge Pump

Electric Gate Operator

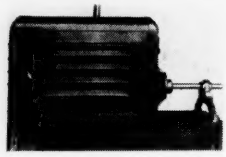
The Barber-Colman Company, Rockford, Ill., announces an Electric Gate Operator designed to operate single-leaf swinging gates, including a latch which automatically locks the gate when in the closed position. Its most outstanding feature is the heliocentric speed reduction—the same type as used on many heavy jobs such as canal gate operators, etc. Other important features consist of the limit switch, adjustable friction clutch, and the latching mechanism.

The operator is available in two models—Model Q and Model QR—the former requiring constant contact of the control station, while the latter requires but momentary contact. Model QR is often controlled by a driveway plate or, especially on residential jobs, by Radio Control. Both models are suitable for standard wire mesh gates up to 14 feet wide, 7 feet high, or 1000 pounds in weight. Gates weighing more than 500 pounds must be equipped with anti-friction bearings.

The most simplified form of Barber-Colman Radio Control—equipment which provides means for controlling garage doors or gates and lights from the instrument board of the car—is Model C which can be used only with the momentary contact operators, Models S, MR, VR, and QR, and a special limit switch for the operator must be specified. Pressing a button in the car causes the door to open if it is closed, and to close if it is open.

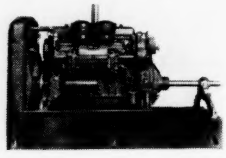
GM Diesel Engines Series 71

Now available in smaller sizes, the Diesel engine, one of the most efficient prime movers, offers the advantage of low cost power to small and large power



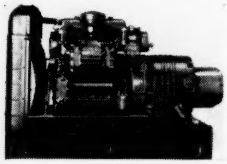
Type RHLC Engine With Radiator Hood, Long Base and Clutch

users alike. In the class of small type Diesels is Series 71 developed by General Motors and introduced by the Diesel Engine Division, General Motors Sales Corporation, Cleveland, Ohio. While the development of this Series involved nothing radical in design, it was backed by 25 years' experience of the Winton Engine Company, now the Cleveland Diesel Engine Division of General Motors.



Type RLC Engine With Radiator, Long Base and Clutch

Series 71 GM Diesels is available in four sizes: Model 1-71, a one-cylinder model of 15 horsepower at 1200 r.p.m.: Model 3-71, 3 cylinders, 45 horsepower at 1200 r.p.m.; Model 4-71, 4 cylinders, 60 horsepower at 1200 r.p.m., and Model 6-

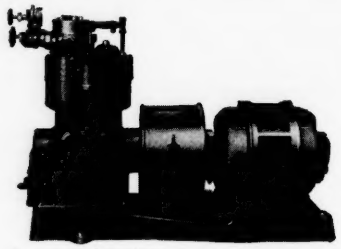


Type RLC Engine With Radiator, Long Base and Generator

71, 6 cylinders, 90 horsepower at 1200 r.p.m. Special equipment has been designed, matched with each engine, to meet requirements of specific applications. Outstanding features in the design and construction of the GM Diesel Series 71 engines are: Location of accessories, eight basic engine arrangements being available; balancing mechanism, lubrication features, direct injection of fuel, uniflow principle, close regulating governor which controls the speed of the engine with a minimum of variation throughout the entire operating range, and the design of all working parts to provide maximum engine life.

High Pressure Starting-Air Compressor

For use as a starting unit for internal combustion engines, Ingersoll-Rand Company, Phillipsburg, N. J., announces the Ingersoll-Rand Type 20 Compressor, a vertical, two-stage, two-cylinder, single-acting, high pressure stationary unit. The machines are built in four sizes ranging from 7½ to 20 horsepower for piston displacements of from 29 to 60 cubic feet per minute at discharge pressures of 300 to 400 pounds on heavy duty service, and up to 1,000 pounds on intermittent starting service. They are available in a variety of drives, including direct connection to electric motor, gasoline or oil engine, and flat or V belt. Type 20 is water cooled, automatically lubricated, requiring a minimum of attention, and is particularly adaptable for starting stationary and marine Diesel engines, as well as for supplying small quantities of high pressure air for industrial applications.



Ingersoll-Rand Type 20 Compressor

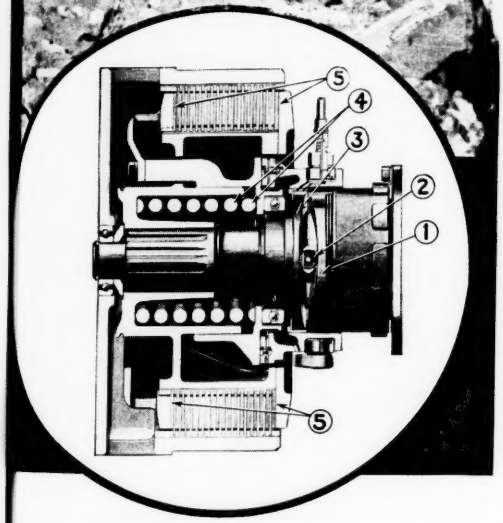
500-Ton Hydraulic Press

For use in the production stamping of automobile parts, three 500-ton Southwark single-acting Hyspeed hydraulic presses were recently shipped from the Eddystone shops of the Baldwin-Southwark Corporation, Philadelphia, Pa. These presses are capable of making 22 short working strokes a minute, ranking them among the fastest hydraulic presses of their type. They have an adjustable stripper in the moving down platen and a full stroke of 20 inches, while the platen area is 48 inches by 41 inches. They may be operated manually, semi- or completely automatically. Of the self-contained, oil-operated type, the presses have side housings of cast steel. Pump, motor and valves are located on the top of the press and are readily accessible.

Power Utility Fingerlift Truck

Deriving its name—"Stubby"—from a radically new design involving a compactness never achieved before, it is declared, in material handling equipment of like character, a new power utility fingerlift truck has been introduced by Clark Tructractor, Battle Creek, Mich., for general purpose service around manufacturing plants, machine shops, warehouses, docks and freight terminals. The machine is only 38 inches wide, chin high, and lifts the bottom of the load to a height of 60 inches. It is gas powered for 24-hour continuous service.

Not an Ounce of Lazy Horsepower IN THE NEW INTERNATIONAL TD-18 DIESEL



FINGER-TIP PRESSURE releases the multiple-disc steering clutches in the TD-18 . . . the engine, not the operator, does the work through power-release actuators built into the clutches. The cross-section view, above, shows how they work. Only enough pressure is needed on the clutch lever to move a friction surface against the rotating clutch hub. Cam (3) rotates about a quarter turn on rollers (2), which separate cams (1) and (3). Cam (3) compresses main clutch spring (4) and releases clutch plates (5).

The power-release actuators relieve the operator of the hard pull ordinarily required to operate slow-speed, multiple-disc steering clutches —saving his strength and reducing fatigue. In addition, the clutches are *fully* engaged or disengaged—no drag on the discs, no unnecessary wear and heating. Brake assistance is seldom required when there is a load on the drawbar.

A NEW DAY is here for users of heavy-duty mobile power! The new 70 h.p. International TD-18 Diesel TracTracTor brings a new standard of operating performance and economy into the picture . . . more work, lower costs, bigger profits.

The power and flexibility of the International 6-cylinder *full* Diesel engine are coordinated to a fine point with other features in the TD-18 . . . *a higher percentage of the maximum drawbar horsepower*—70 h.p.—*can be kept continuously applied to get more work done per day at lower cost.*

The engine starts easily and quickly from the operator's seat . . . no time lost by man or machine in getting on the job.

The TD-18 is the easiest steering crawler tractor built. Engine power, not manpower, releases the steering clutches through power-release actuators built into the clutches.

Six forward and two reverse speeds provide close selection of traveling speed to load without loss in engine r.p.m. or maximum horsepower capacity. Automatic clutch brake facilitates fast shifting of gears.

These features enable the operator to take full advantage of the power available . . . and make the TD-18 *unusually easy to handle* and *easy on the operator.*

Find out what the TD-18 offers for your jobs. The nearby International industrial power dealer or Company-owned branch will give you full details. Remember that there are five other TracTracTors in the International line, also five wheel-type tractors, and eleven power units.

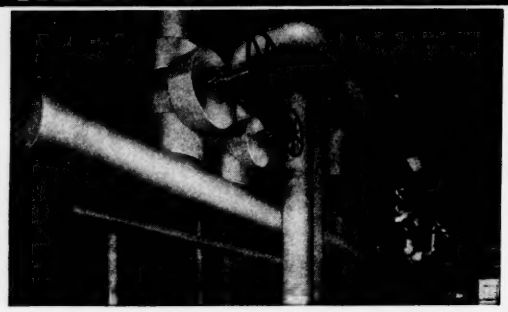
INTERNATIONAL HARVESTER COMPANY
(INCORPORATED)
180 North Michigan Avenue Chicago, Illinois

These Features Mean Efficiency, Low Cost, Long Life

1. Six-cylinder full Diesel engine.
2. Engine is started easily from the operator's seat.
3. Six forward and two reverse speeds.
4. Automatic clutch brake for fast gear shifting.
5. Easiest steering crawler tractor built. Power-actuated steering clutches.
6. Steering levers and pedals adjustable to suit operator.
7. Pivot shaft relieved of twisting stresses, and tracks kept in alignment, by ball-and-socket outer pivots, diagonal-arm inner pivot bearings, and roller stabilizer.
8. Track shoes keyed to track links to prevent loosening of shoes.
9. Triple-gear oil pump. Full-pressure engine lubrication at all working angles.
10. Positive track roller lubrication at all speeds. Quintuple-sealed track rollers have patented gravity lubrication at low speeds and pressure lubrication at high speeds. Oil and dirt seals on both sides of sprockets. Self-cleaning idler wheel.
11. Tocco-hardened crankshaft with replaceable main and connecting rod bearings.
12. Unit construction. Each steering brake, steering clutch, track frame assembly, and other units, adjusted or replaced without disturbing adjacent parts.
13. Famous TracTracTor accessibility. More productive hours, low maintenance cost.
14. Allied equipment engineered for the TD-18 by well-known manufacturers.

INTERNATIONAL INDUSTRIAL POWER

Carey
HEAT-INSULATIONS



Used in Production of Better Paper Products

The Union Bag & Paper Corporation, Savannah, Ga., is one of the many new plants in the South that is effecting important fuel savings in the manufacture of its products, through the use of

CAREY 85% MAGNESIA

and other high-efficiency Carey Insulations. Carey offers a complete line of heat insulations, of proved permanence; the advantages of a national organization; 66 years of manufacturing experience. Write for Insulation Handbook. Address Dept. 61.

THE PHILIP CAREY COMPANY • Lockland, Cincinnati, Ohio
Dependable Products Since 1873
BRANCHES IN PRINCIPAL CITIES

BUSINESS IS IMPROVING

and plans for new development are being made.

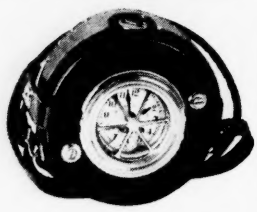
Our purpose is to help business

Correspondence invited

BALTIMORE COMMERCIAL BANK
GWYNN CROWTHER, *President*
BALTIMORE, MARYLAND

Member Federal Reserve System
Member Federal Deposit Insurance Corporation

DETEX
WATCHMEN'S CLOCKS



DETEX WATCHCLOCK CORPORATION
408 Glenn Building, Atlanta, Ga.
NEW YORK • CHICAGO • BOSTON • ATLANTA

» » » Finance « « «
AND KINDRED SUBJECTS

Business Loan Campaign

A great to do is being made about business loans. Some seem to think that the Mead bill, which proposes to give government insurance up to 90 per cent to banks making such loans, is not sufficient but should be extended to cover a wider field of lending agencies.

In spite of the record amount of excess bank reserves and desposit money not working, it is claimed that banks are not doing their duty when it is a well known fact that they are eager to make loans that are consistent with reasonable rules of safety. Those who are entitled to credit refrain from borrowing to expand their business because they are doubtful about the future. Very probably they will continue in doubt until a different program is adopted by government than that of inordinate spending.

Time Lost in Strikes

Interesting figures on strikes have been released by the Department of Labor. The average annual total of man-days lost as a result of labor disputes in the five years from 1933 to 1937 inclusive was more than eighteen millions per year, as compared to an average of four million in the years from 1930 to 1933 inclusive.

The *Knoxville Journal*, in calling attention to the matter, asks "Why have the workers of this country within five years lost every year more than four times the amount of time they did in the years preceding?" It gives the answer as a "consistent and prolonged effectuation of the administration's policy of encouraging discord between employer and employe, in the process playing to labor for political support and at the same time gratifying a deep-seated New Deal hostility toward American business."

Banks Owe But Little

The National Banks of the United States had on March 29, 1939, total deposits of $28,169,251,000, while the Bills Payable account was a mere $5,980,000. This, while $372,000 more than December 31, 1938, is nevertheless one of the lowest figures of record.

Credit Facilities

In a survey of bank credit facilities by the National Industrial Conference Board, the question of banks' failure to respond to the credit needs of worthy enterprise is pretty well answered. Of 1,775 concerns reporting their experiences in a questionnaire, only 5 per cent had been refused credit.

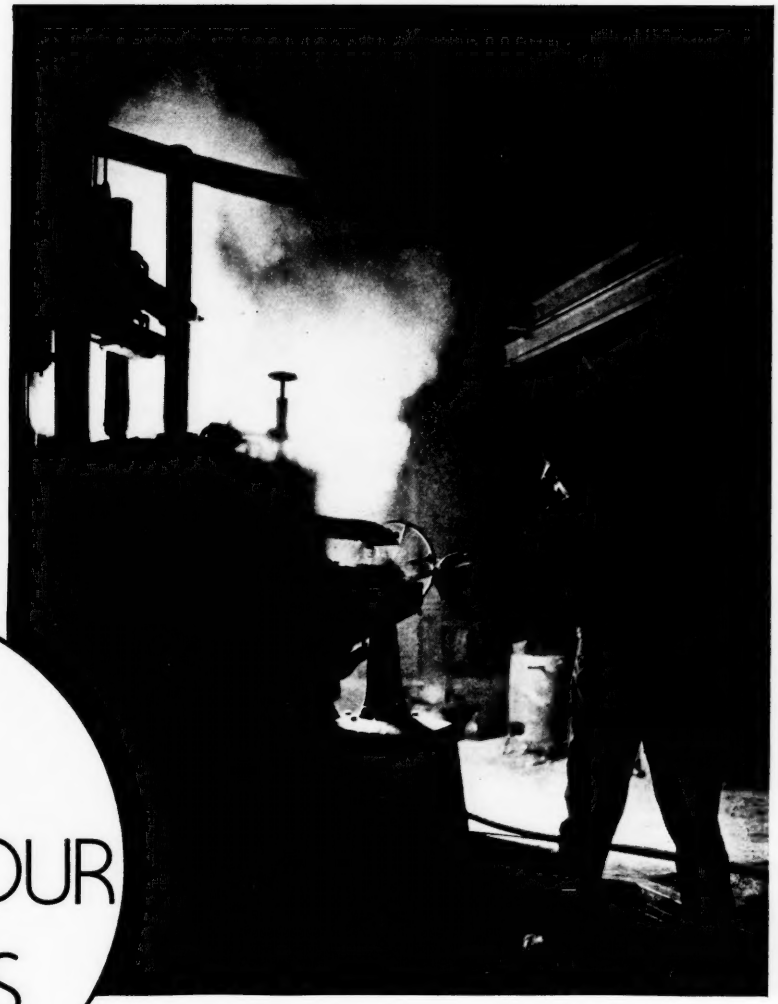
Five years ago Congress authorized the RFC to make loans to little business. Last year the RFC's lending power were further increased. Many of those applying for loans reported the RFC's standards too high.

The Mead bill, now pending, came along as a consequence. It contains the provision of 90 per cent guarantee by government.

Indirect Taxes

Speaking of taxes, B. C. Forbes in his column emphasizes the amount and wide sweep of insidious taxes of which most people are not aware. The National Consumers' Tax Commission analyzing the revenue that came from hidden taxes

(*Continued on page* 44)



You KNOW YOUR BUSINESS —AND WE KNOW OURS

A couple of thousand kilowatts to run a heat on a steel furnace . . . or a light for a watchman's shanty—it's there when you want it, with "central station electric service" doing the job for you.

You know your business—and what you need to make it run. We know our business and what it takes to meet your needs.

Long years of experience, and a continuing responsibility to the obligations of public service are among the ingredients in this recipe for public progress.

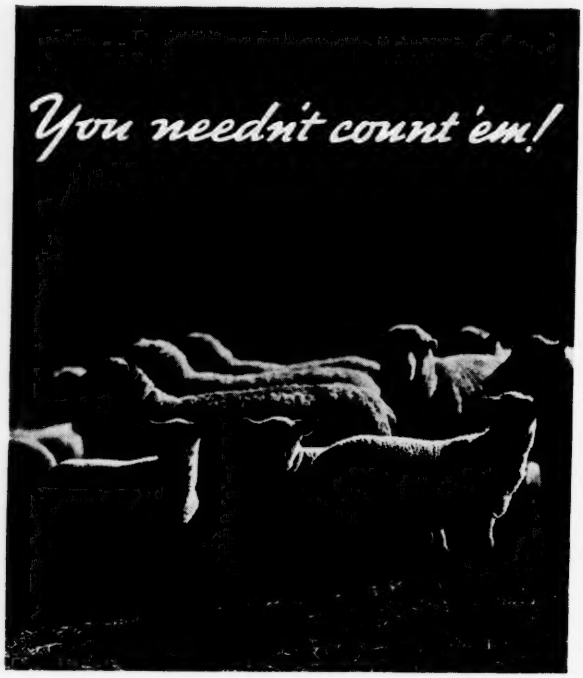
That's teamwork. That's how industries and jobs and wages are built up.

TO CUSTOMERS SMALL AND LARGE

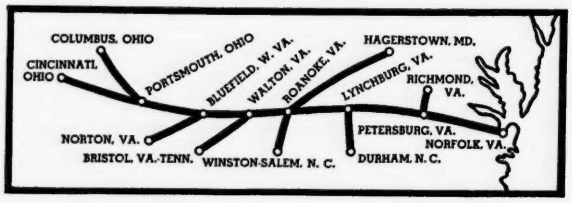
● The companies in this system make available, as a regular service, a reservoir of experienced personnel, cooperating in all matters looking to efficient uses of light, heat and power . . . in benefiting from improvements, expanding facilities, effecting economies.

THE COMMONWEALTH & SOUTHERN CORPORATION

ALABAMA - FLORIDA - GEORGIA - ILLINOIS - INDIANA - MICHIGAN - MISSISSIPPI - OHIO - PENNSYLVANIA - SO. CAROLINA - TENNESSEE



YOU can avoid sleepless nights by routing your freight shipments via Precision Transportation—the Norfolk and Western Railway's unexcelled freight service between the Midwest and the Virginias and Carolinas and between the North and the South. Your shipments, regardless of size or product, receive careful handling, and are transported in modern freight cars on fastest schedules compatible with safety—arriving at their destinaton on time, in good condition. From pick-up to delivery, Precision Transportation provides economical and convenient freight service. Specify the Norfolk and Western Railway on YOUR next shipment.



NORFOLK AND WESTERN Railway

N&W RAILWAY

PRECISION TRANSPORTATION

"Finance and Kindred Subjects"

Indirect Taxes

(*Continued from page 42*)

in the retail cost of goods and services, estimated that of total tax collections of $14,155,728,838, consumers paid $7,960,162,033 as part of their purchases of commodities. * * * More than 45 per cent of total Federal revenues and more than 52 per cent of local taxes are paid by the public through indirect taxes.

Government Competition With Utilities

In a speech at Selma, Alabama, T. W. Martin, President of Alabama Power Co., estimating the growth of the power market in Alabama, stated that the demand for power by 1950 will be 60 per cent greater than for 1939, and will require no less than $100,000,000 of new capital in the next ten years and call for the employment of 2,000 additional men.

To supply this volume of power will require not less than 1,000,000 tons of coal, and the additional power will have to be provided from steam plants.

"For every dollar spent by the Power Company to increase power supply, industries and others will spend vastly more, and if in the course of the decade to come our company raises $100,000,000 in new capital, we should expect still additional investment throughout the State of at least five times that amount or $500,000,000. * * * It would mean the purchase of materials and equipment, much of them from Alabama firms, amounting to $6,500,000 per annum, which would result in a large increase in the payrolls of the industries supplying them."

All of this depends upon the ability of the utilities to raise new capital at reasonable rates and, in the language of Mr. Martin "provided the laws of the State and the Nation give that reasonable assurance to the investor which he should have."

Mr. Martin called attention to the fact that security issues of electric and gas utilities for four years, 1935 to 1938, amounts to $4,079,000,000, but this was largely confined to Western, Eastern and Northern states. The total amount accredited to the Southeast being $214,000,000 or 5.3 per cent.

He says in his conclusion that the electric utilities in North Carolina, South Carolina, Georgia, Tennessee, Alabama and Mississippi were unable to finance or refinance in that period because of open, competitive warfare between Federal power agencies and the privately owned utilities.

The Debt

The Federal debt is now $40,365,075,000. This is not counting the money put out by government lending agencies, the total figures of which are not known.

If Senator Byrd's effort through a bill he introduced, to have the Treasury Department submit an exact statement of all obligations incurred by the Treasury and the numerous Bureaus that are lending, is adopted it will not be surprising if the debt is already beyond $45,000,000,000, and if to this are added government guarantees which an honest business house would put in its financial statement, it would not be surprising if the debt had gone to $50,000,000,000.

It is suggested now by some New Dealers we can stand $100,000,000,000, but they are not the ones who want to see business improve and private initiative gain confidence so that the wheels of industry may hum again, nor are they concerned in any degree, so far as may be judged from their actions, about the payment of what we owe. An unbalanced budget does not upset them so long as it is possible to borrow unlimited funds at the lowest rate of interest ever known.

The Arundel Corporation

BALTIMORE, MD.

Constructors and Engineers

Distributors of Sand - Gravel - Stone and Commercial Slag

A COMPLETE ORGANIZATION

Our complete organization with years of experience in successfully executing large construction contracts of various kinds is prepared to undertake the construction of earth, masonry and concrete dams, drydocks, dredging of all kinds, river and harbor improvements, deepening channels, hydraulic filling and rock work, tunnels, railroad construction, sewers and waterways.

PERSONNEL:

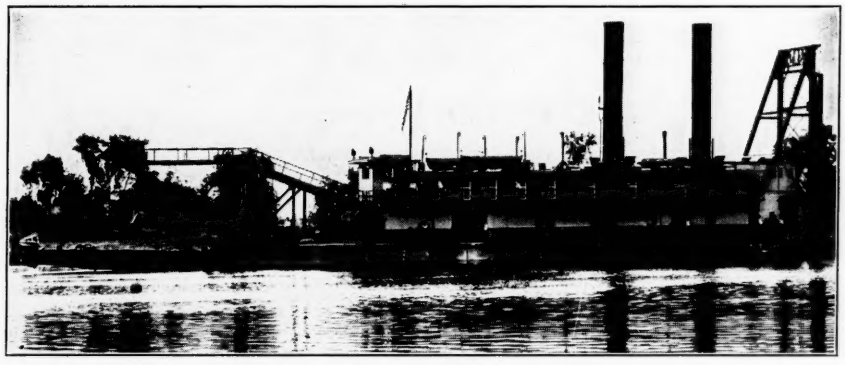
JOSEPH V. HOGAN, President
W. BLADEN LOWNDES, Vice-President
RICHARD A. FROEHLINGER, Secy. & Treas.
E. L. WADE, Assistant Secretary
J. N. SEIFERT, Asst. Secy. & Asst. Treas.
C. W. BLACK, Chief Engineer
HOWARD O. FIROR, General Supt.

MAIN OFFICE: Arundel Building, Pier 2, Pratt Street
BALTIMORE, MD.

Branches: BROOKLYN, N. Y.—MIAMI, FLA.

DREDGING

FILLING, LAND RECLAMATION, CANALS, PORT WORKS
RIVER AND HARBOR IMPROVEMENTS—DEEP WATERWAYS AND SHIP CHANNELS



We are especially equipped to execute all kinds of dredging, reclamation and port works in Southern waters.
Correspondence invited from corporate and private interests everywhere.

Contractors to the Federal Government

ATLANTIC GULF AND PACIFIC CO.

NEW YORK: 15 Park Row HOUSTON, TEXAS: Scanlan Building

INDUSTRIAL NEWS

Ryerson Buys Philadelphia Plant

Joseph T. Ryerson & Son, Inc., Chicago, Ill., have purchased their Philadelphia plant property at 5200 Grays Avenue from the Taylor-Wharton Iron and Steel Company. The property had formerly been under lease. Extensive improvements and additions which have been put under way by the Ryerson Company will greatly enlarge the scope of its service to the Philadelphia market.

Fan Research Laboratory

The Torrington Manufacturing Company of Torrington, Conn., has recently set up a new laboratory for the development and testing of propeller fans and blower wheels, the floor measuring approximately 30 by 100 feet, with a height of 16 feet to the rafters. Complete facilities are available for free air testing according to the NEMA code, and for pressure and exhaust testing of propeller fans up to 30 inches diameter and blower wheels to 20 inches diameter. Attic fans up to 48 inches diameter are tested in a housing designed to give performance similar to that obtained in actual experience. Facilities are also available for complete endurance tests and for testing fans in appliances such as unit heaters and coolers, automobile heaters and defrosters, oil burners, etc.

Heads Certain-Teed Products

Henry J. Hartley, former president of Nichols Engineering and Research Corporation, has been elected president of Certain-Teed Products Corporation, New York City, manufacturers of building materials. He succeeds C. L. Von Egloffstein, recently resigned.

Heads Pittsburgh-Des Moines Company

John Edward Jackson has been elected president of the Pittsburgh-Des Moines Company of Pittsburgh, Pa., to succeed his father recently deceased. Graduating in Civil Engineering in 1924 from Iowa State College, Mr. Jackson has been actively connected ever since with various departments of the Pittsburgh-Des Moines Company and its affiliate, the Pittsburgh-Des Moines Steel Company. Under his supervision the wind tunnel for N. A. C. A. at Langley Field, Va., was constructed, as well as other important projects. William R. Jackson has been elected a director of the Pittsburgh-Des Moines Company and also Assistant Secretary and Treasurer. Other officers of the company are: A. C. Pearsall, Vice President; J. E. O'Leary, Vice President; H. W. Ford, Vice President, and George A. Smith, Secretary and Treasurer.

THE BALTIMORE AND OHIO RAILROAD COMPANY

SUMMARY OF ANNUAL REPORT FOR THE YEAR 1938

Report of the Company's operations for the year 1938 is being mailed to the stockholders. Stated briefly, the results for the year show a decrease of 20.49% in gross revenues, or from $169,436,436 in 1937 to $134,722,330 in 1938, and an increase in the net loss, after all taxes and other deductions, from $720,695 to $13,124,530.

Total operating expenses of $104,984,021 showed a reduction of $23,875,495, or 18.53%, compared with the year 1937. The expenses reflect an increase in wage rates which took effect in the latter half of 1937 and added about $4,150,000 to the company's expenses in 1938.

Railway tax accruals, at $10,412,774, reflected a decrease of $505,781. Tax accruals include $3,709,108 pay-roll taxes covering unemployment compensation under the Social Security Act and the Carriers' Taxing Act of 1937 for the purposes of the Railroad Retirement Act.

CONDENSED STATEMENT OF OPERATING RESULTS

	Year 1938	Year 1937	Decrease
Railway Operating Revenues:			
From Freight	$115,426,378	$147,212,330	$31,785,952
From Passenger	10,561,495	11,918,602	1,357,107
From All Other Sources	8,734,457	10,305,504	1,571,047
Total	$134,722,330	$169,436,436	$34,714,106
Railway Operating Expenses	104,984,021	128,859,516	23,875,495
Net Railway Operating Revenue	$29,738,309	$40,576,920	$10,838,611
Other Operating Charges:			
Railway Tax Accruals	10,412,774	10,918,555	505,781
Equipment and Joint Facility Rents	4,473,741	4,749,740	275,999
Net Railway Operating Income	$14,851,794	$24,908,625	$10,056,831
Other Income from Investments and Other Sources (Net)	4,207,959	6,554,711	2,346,752
Income Available for Fixed Charges	$19,059,753	$31,463,336	$12,403,583
Fixed Interest and Other Charges	32,184,283	32,184,031	*252
Net Income	D$13,124,530	D$720,695	$12,403,835

(*) Denotes Increase. (D) Denotes Deficit.

BALANCE SHEET

The balance sheet at December 31, 1938, shows total investments (less accrued depreciation) of $1,078,104,478 and current assets of $23,818,931. The total of interest bearing debt and leased lines obligations outstanding was $683,808,070. Current liabilities amounted to $26,855,503. The capital stock outstanding was $315,158,485 and corporate surplus $60,337,728.

The report presents a condensed statement of the Plan for Modification of Interest Charges and Maturities, and points out that of the total of $542,810,628 of securities affected by the Plan, voluntary assents have been received on $469,481,173, or 86.49 per cent., from more than 57,000 holders.

DANIEL WILLARD,
President.

Perkins on Board of Directors of Koppers Company

Walter F. Perkins, vice president of Koppers Company, Pittsburgh, Pa., in charge of its Baltimore operations, has been elected a member of the board of directors of Koppers Company. A graduate of Lehigh University, where he received a degree in Civil Engineering, Mr. Perkins joined the former Bartlett Hayward Company in 1915. He went to the Worthington Pump and Machinery Corporation as works manager in 1927, returning to Bartlett Hayward in 1932 as vice president and general manager. He later became president and held that position until 1936 when the company, a subsidiary, was absorbed as a division of Koppers Company. He has been vice president of Koppers Company since that time and is in charge of the Bartlett Hayward and American Hammered Piston Ring divisions, and the Maryland Drydock Company, a subsidiary.

Roebling Announces Appointment

John A. Roebling's Sons Company, Trenton, N. J., manufacturers of wire and wire rope, insulated wire and cables and wire cloth and netting, announce the appointment of Earl N. Graf as manager of their Pittsburgh (Pennsylvania) branch at 855 West North Avenue.

Hercules Announces Appointments

Hercules Powder Company of Wilmington, Del., announces the appointment of Arthur Langmeier as director of operations of the Naval Stores Department, and of Paul Mayfield, formerly assistant director of sales, to succeed Mr. Langmeier as director of sales of the Naval Stores Department. In his new position, Mr. Langmeier will have charge of all manufacturing and development work at the plants and naval stores work at the Experiment Station. He joined Hercules in 1921 and Mr. Mayfield in 1926.

Chemical Industries Exposition

More than 260 leading manufacturers have already engaged space for the 17th Exposition of Chemical Industries to be held at Grand Central Palace, New York City, December 4 to 9, 1939. Three entire floors of the Palace are reserved for the Exposition which promises to exceed all of its predecessors in size and scope. The Exposition will be under the personal direction of Charles F. Roth, President of the International Exposition Company.

Republic Steel Addition

Contracts have been awarded by Republic Steel Corporation for the construction of a Fretz-Moon continuous gas butt-weld furnace addition to its plant at Youngstown, Ohio, for making butt-weld pipe ½ inch to 3 inches in diameter and in random lengths up to 45 feet. Construction is scheduled to begin soon. The new mill will adjoin the existing butt-weld mills at Republic's tube plant and, upon completion, will give Republic facilities in Youngstown for producing gas weld butt, old style conventional butt, lap weld, and electric weld. The Fretz-Moon patents are jointly owned by Republic and Spang & Chalfant Company, Pittsburgh, through the Fretz-Moon Tube Company, Butler, Pa., which has two such mills. Steel for these mills has been furnished from Youngstown, and the demand for the pipe has been good. Republic has completed enlargement of one of its open hearth furnaces in Youngstown and has begun work to increase the capacity of another. The two enlarged furnaces will have a capacity of about 175 tons, giving Republic four such furnaces in Youngstown. Ten of the company's 15 furnace units there have a capacity of about 125 tons and one a capacity of about 145 tons.

Dedicating Large Crane Valve

A valve to be dedicated, at a date to be determined, in the Museum of Science and Industry, Jackson Park, Chicago, was designed, manufactured and donated to the Museum by Crane Co., Chicago. Identified as a 72-inch iron body gate valve, it is brass trimmed with by-pass valve, gear operated. The valve weighs more than 17 tons, with a valve aperture of 6 feet and a depth at the aperture of 3 feet, 9-1/8 inches. Its width at the aperture, not counting the by-pass valve, is 7 feet, 5 inches, and its height is 18 feet, 5 inches, counting the cast iron base but not the platform.

Simmons Awarded Honorary Degree

In recognition of his achievements in the electrical industry, Donald M. Simmons, Chief Engineer of the General Cable Corporation, New York City, has been awarded an honorary degree of Doctor of Engineering by Princeton University. Mr. Simmons graduated from Princeton in 1911 with the degree of A.B. and received his E.E. degree there two years later. Except for two and one-half years in the Army, he has been in the electrical cable field for more than twenty-five years. He is a fellow of the American Institute of Electrical Engineers and a member of the major foreign electrical societies.

Dodge Manufacturing Representatives

The Dodge Manufacturing Corporation of Mishawaka, Ind., manufacturers of conveying and power transmission equipment, announce the appointment of two new representatives in the South—The Moore Dry Kiln Company of Jacksonville, Fla., and the Cunningham Machinery Company of Shreveport, La.

Link Belt at New York World's Fair

The participation of Link-Belt Company of Chicago, Ill., in the New York World's Fair of 1939 is intended to familiarize the general public with the "vital functions of machinery in making life better for us all." Since Link-Belt products are so widely used in this country, the company, as a manufacturer of mechanical equipment, is particularly well fitted to interpret American industry to the masses. In the preparation of its exhibit, it has endeavored to inject into its display an impelling human interest motif. A central sculptured figure represents the Spirit of Power Transmission, which, through the medium of a Silverstreak Silent Chain Drive, is energizing one of the great cities of the future. This city depicts the progress man has made in the generation, transmission and control of power. The exhibit itself is the most inclusive display the company has ever assembled — photo murals, translites, dioramas, equipment and operating units in a modern colorful setting—occupying about twice the space Link-Belt had at the Century of Progress Fair in Chicago.

Crane Employed for Moving Heavy Machinery

When it becomes necessary for a large manufacturing plant to move, the problem of how to move and relocate bulky machinery and equipment is of foremost importance. This problem was worked out satisfactorily in the removal of an aeroplane plant from one city to another via truck transportation, since the plant was not connected directly with railroad facilities. The manufacturer made easy work of the difficult job by employing a P&H, Model 250, truck crane. The mobility of the 15-ton capacity crane made it possible to load and unload the machinery quickly and easily with a minimum amount of handling, a feature phase of the operation being the lowering of a large hydraulic press to the ground from a vertical to a horizontal position, the press weighing 51,000 pounds with most of the weight in the top half. The crane was equipped with a 40-foot boom.

Schwanhausser Vice President of Worthington

Edwin J. Schwanhausser has been elected vice president of Worthington Pump and Machinery Corporation, Harrison, N. J., according to President H. C. Beaver. Mr. Schwanhausser is a graduate of Stevens Institute of Technology and has been with Worthington since 1915. He was made assistant Works Manager in 1927 and in 1929 was transferred to the Corporation's Buffalo Works as Works Manager. His duties have been concerned with the development and manufacture of Diesel and gas engines, air, gas and refrigeration compressors. As Vice President and Works Manager, he will continue in his present responsibilities.

Baltimore and Ohio Railroad

Gross revenues of the Baltimore and Ohio Railroad Company for 1938 show a decrease of 20.49 per cent, as compared with 1937, according to the annual report for 1938 (the one hundred and twelfth annual report of the company) as submitted to stockholders by President Daniel Willard and the Board of Directors. After deduction of taxes and

(*Continued on page* 48)

CONTROL by JOHNSON

In the Tobacco Research Laboratory at the Kentucky Agricultural Experiment Station, nine test chambers, designed and erected by the Research Staff of the Experiment Station, are used in studies of the curing of tobacco. Accurate control of conditions in the test cabinets is extremely important. Pictured above are a few of the *Johnson* automatic temperature and humidity control devices which are depended upon to assume this responsibility . . . Two of the *Johnson* Duplex Record-O-Stats are shown. One of these instruments is employed for each test cabinet, with two sensitive elements carried into the cabinet to control both dry and wet bulb temperatures, recording them, at the same time, on the Record-O-Stat's chart. The switchboard includes all of the remote control switches for the operation of *Johnson* dampers, throughout the laboratory, so that the operator may command the entire installation from one point.

Such special applications are "regular business" for the *Johnson* organization. Everywhere in industry, whether the problem be research or production and processing, *Johnson* automatic temperature and humidity control equipment, applied by Johnson's trained engineers, provides the answer. Countless plants, in all parts of the continent, place their temperature control problems in our hands, with complete confidence.

ALSO: JOHNSON CONTROL FOR SPACE HEATING AND AIR CONDITIONING

JOHNSON
AUTOMATIC TEMPERATURE AND HUMIDITY CONTROL
JOHNSON SERVICE COMPANY, MILWAUKEE, WIS. AND PRINCIPAL CITIES

INDUSTRIAL NEWS

(*Continued from page* 47)

other items, there was an increase in the net loss from $720,695 to $13,124,530.

Total operating expenses show a reduction of $23,875,495, or 18.53 per cent, compared with 1937, the expenses reflecting an increase in wage rates which took effect in the latter half of 1937 and added about $4,150,000 to the company's expenses in 1938.

Railway operating revenues for 1938 amounted to $134,722,330, as compared with $169,436,436 for 1937, a decrease of $34,714,106, while railway operating expenses for 1938 amounted to $104,984,021, as compared with $128,859,516 for 1937. This left net railway operating revenues of $29,738,309 in 1938, as compared with $40,576,920 in 1937, a decrease of $10,838,611.

The total miles of track operated during the year included about 6,405 miles of first main track and 5,950 miles of all other track, making a total of about 12,355 miles. At the end of the year the company and its directly operated subsidiaries had 2,083 locomotives; 1278 passenger-train cars; 83,642 freight-train cars; 148 floating or marine equipment units, and 1763 service and miscellaneous equipment units.

Presenting a condensed statement of the Plan for Modification of Interest Charges and Maturities, the report points out that of the total of $542,810,628 of securities affected by the Plan, voluntary assents have been received on $469,481,178, or 86.49 per cent, from more than 57,000 holders.

TRADE LITERATURE

TIMBER BRIDGES—
Booklet—presenting a survey of typical types of highway bridges in the United States, built of pressure treated timber, with engineering data, photographs, records of service life and maintenance, as well as savings in construction.
The Wood Preserv'ng Corporation, subsidiary of Kopp ompany, Pittsburgh, Pa.

POWER TRANSMISSION UNITS—
Book No. 1600—announced as a new handbook of modern power transmission units, containing complete design and application data, dimensions, weights, list prices, cross-indexed for the convenient use of design engineers and plant managers.
Link-Belt Company, Chicago, Ill.

TONCAN IRON PIPE—
Catalog—"Toncan Iron Pipe for Tough Service," telling the story of Toncan Copper Molybdenum Iron Pipe and covering such subjects as: electric weld process of manufacture; rust and corrosion resistance; recommended applications; details of various tests; physical properties; threading procedure; welding; sizes and weights; where to buy, etc.
Republic Steel Corporation, Advertising Division, Cleveland, Ohio.

EVAPORATORS—
Catalog and Reference Work—intended to supply information to those interested in evaporating equipment with details regarding the design, selection and proper application of such equipment, and to make better known the features and advantages of Struthers-Wells evaporators.
Struthers-Wells, Division of Struthers Wells-Titusvile Corporation, Titusville, Pa.

AGITATORS AND MIXERS—
Catalog No. 395—illustrating and describing Patterson Agitators and Mixers and chemical machinery and equipment for the process industries.
The Patterson Foundry and Machine Company, East Liverpool, Ohio.

PEANUT PICKER—
Bulletin No. 78—devoted to Frick Steel Peanut Pickers, with brief description of the units and illustrations showing design and construction as well as application; the machine may be fed by hand from either the right or left side.
Frick Company, Inc., Waynesboro, Pa.

PLASTIC MATERIALS—
Handbook—presenting 82 pages of technical data on Plaskon Molded Material, with various sections illustrated to cover various properties of the material and its physical constants; essential principles of plastic design, etc.; tables covering capacity of hydraulic rams in tons; temperature conversion; steam temperature vs. gauge pressure diameters and areas of circles, and other data.
Plaskon Company, Inc., Toledo, Ohio.

BLUEPRINT READING—
Booklet—"Simple Blueprint Reading with Particular Reference to Welding and Welding Symbols of The American Welding Society"; price 50 cents, postage prepaid in the United States; 75 cents, postage prepaid elsewhere.
The Lincoln Electric Company, Cleveland, Ohio.

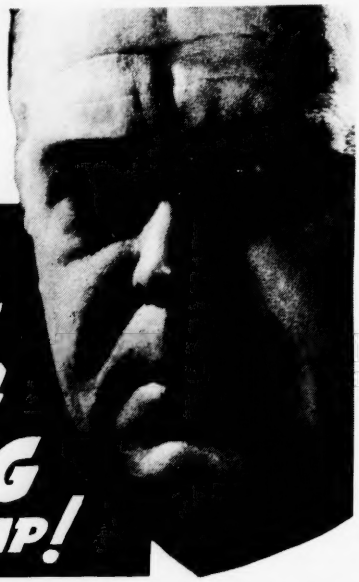
WATER SOFTENING—
Bulletin No. 597—"Permutit Zeolite Water Softening," out lining the simplest method for removing hardness from a water supply —by the use of the Zeolite Water Softener; Bulletin No. 2215—illustrating and describing Portable Water Softeners for oil well drillers, the standard Permutit Zeolite Water Softener now being equipped with skids for portability; application, operating principle, sizes and capacities of the units are presented.
The Permutit Company, 330 West 42nd Street, New York, N. Y.

HANDLING METHODS—
Booklet No. 16—presenting 24 full page action pictures on latest material handling methods.
Towmotor Co., 1237 E. 152nd Street, Cleveland, Ohio, manufacturers of straight gas power industrial tractors and trucks.

BONNEY HAND TOOLS—
Catalog No. 39—covering a full line of alloy steel sockets, wrenches and small hand tools; 92 pages, printed in two colors, showing not only the complete line of Bonney hand tools but many new items that have recently been added.
Bonney Forge & Tool Works, Allentown, Pa.

WESTINGHOUSE AT WORLD'S FAIR—
Portfolio—"Quick Facts on Westinghouse at the New York World's Fair," including information on the assistance given by Westinghouse engineers to the many private exhibitors, and to the Fair Corporation itself, as well as the exhibits in the Westinghouse Building.
Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa.

Need CHEAPER Water?



You can save Money with a STERLING TURBINE PUMP!

Every Sterling is PRECISION BUILT -- yet Costs No More!

SPARE us 3 minutes of your time and we can easily prove to your satisfaction that a Sterling Deep Well Turbine Pump will save you money!
We can prove, also, that a Sterling is practically trouble-free. That's because of the *"free floating drive" shaft*; the fact that both pipe and couplings are machine-cut threaded to insure a tight fit (no possible chance for water to contact threads); the precision assembly of the pump proper.

If you need service, Sterling gives it—*from coast to coast!*

Write us about your pumping problems today!

STERLING PUMP CORPORATION
Hamilton, O.
Stockton, Cal.

SOUTHLAND PRODUCTS
—WELDED OR RIVETED—

We now manufacture and offer to the trade tanks in all sizes for pressure or gravity work. Also other steel equipment of either

WELDED OR RIVETED CONSTRUCTION

This applies to field as well as shop built equipment

Write us for information and quotations

Chattanooga Boiler & Tank Co.
CHATTANOOGA, TENN.
TANKS

Nickel-clad or Stainless Vessels

¶ Starch kettles, digestors, vats, and other vessels of this durable metal. Your designs or ours—"custom made" to order.

TANKS, TOWERS, BOILERS, KIERS, KETTLES STANDPIPES, SMOKESTACKS, AIR RECEIVERS, Etc.

Write for "Tank Talk" No. 1-D

R. D. COLE MANUFACTURING CO.
ESTABLISHED 1854
NEWNAN GEORGIA

all HEADS styles

FLANGED & DISHED . . . FLANGED ONLY . . . DISHED ONLY . . . DOUBLE DISHED . . . OBROUND . . . PARABOLIC

For All Types of Tanks
One Head or a Carload
We Can Form Heads from All Metals

SEND FOR CATALOG

The Commercial Shearing & Stamping Co.
Youngstown, Ohio

FOR OVER
DAVIS CYPRESS TANKS
50 YEARS

The combination of our experience and "the wood eternal" is unbeatable. That's why plants new and old are continually installing our tanks.

We will be glad to figure with you. Meanwhile let us send you our catalogue.

DAVIS CYPRESS TANKS

G. M. DAVIS & SON
P. O. Box 5, Palatka, Florida

WOOD TANKS

Wood Stave Pipe

THE BALTIMORE COOPERAGE TANK & TOWER CO.
Baltimore, Maryland
The Largest Works of Its Kind in the South

Filtration and Pumping Equipment
For Water Works and Swimming Pools
Sales and Installation
BURFORD, HALL AND SMITH
140 Edgewood Avenue, N. E.,
Atlanta, Georgia

Water Purification Plants
Any Type—Any Purpose—Any Capacity
Dry Chemical Feed Machines
Swimming Pool Filters
E. W. BACHARACH & CO.
Rialto Bldg. Kansas City, Mo.

FREDERICK SNARE CORPORATION

Harbor Works
Bridges
Railroads
Railroad Terminals
Warehouses

CONTRACTING ENGINEERS
Difficult and unusual foundation and engineering problems a specialty
114 Liberty Street, New York
Philadelphia, Pa.; Havana, Cuba; Lima, Peru; Cartagena, Colombia

Industrial Plants
Sugar Mills
Power Plants, Dams,
Reservoirs, Pipe Lines,
Tanks.

United States Cotton Exports

EXPORTS of cotton from the United States in May totaled 143,000 bales valued at $7,293,000 compared with 178,000 bales valued at $8,973,000 in April and 193,000 bales valued at $10,156,000 in May 1938, according to U. S. Bureau of Foreign and Domestic Commerce.

Total exports for the ten months, August through May aggregated 3,107,000 bales valued at $159,019,000 compared with 5,227,000 bales valued at $287,313,000 for the corresponding ten months of 1937-1938, a decrease of 2,120,000 bales or 40.6 per cent in quantity and $128,294,000 or 44.7 per cent in value.

With the exception of Japan and Sweden, smaller shipments were recorded for the principal foreign destinations during the ten months of the current cotton season as compared with the corresponding ten months of last season.

Exports by principal countries for the *ten months* follow:

	Bales		Dollars	
	1938-39	1937-38	1938-39	1937-38
Japan	818,000	591,000	$41,124,000	$31,540,000
United Kingdom	384,000	1,499,000	19,331,000	80,453,000
France	332,000	704,000	17,478,000	39,769,000
Germany	292,000	628,000	15,393,000	35,584,000
Italy	252,000	464,000	12,849,000	25,130,000
Canada	191,000	217,000	9,401,000	11,644,000
Poland	148,000	199,000	7,902,000	11,231,000
Sweden	88,000	78,000	4,500,000	4,491,000
Belgium	84,000	178,000	4,291,000	10,071,000
Netherlands	65,000	110,000	3,442,000	6,431,000

Newsprint Paper Production in the South

THROUGH large-scale commercial production of newsprint paper in the South, it is possible that the United States will again supply a substantial proportion of its newsprint paper needs, according to the Forest Products Division, Department of Commerce.

Laboratory experiments concerned with the production of newsprint paper from southern pine have been conducted for some time. One large commercial plant for production of newsprint paper is already being erected in the South and the intention to erect another has been announced recently.

Statistics compiled by the Department of Commerce show the increasing dependence of the United States on foreign sources for newsprint paper. Approximately 278,000 tons, or 14.6 per cent of the domestic consumption of newsprint in the United States were imported in 1914.

By 1920 imports of newsprint had increased to 729,000 tons, or 31 per cent of domestic consumption during that year. Increased imports continued thereafter and in 1930 totaled 2,279,000 tons, or 64.9 per cent of domestic consumption. During 1938 imports of newsprint totaled 2,274,603 tons, or 73.3 per cent of domestic consumption.

The average annual value of imports of newsprint paper into the United States during each of the years between 1930 and 1938 approximated $97,380,000 according to the Department of Commerce.

Writing Paper Leads All U. S. Paper Exports for First Four Months

WRITING paper led all classes of paper exports from the United States during the first four months of the current year, according to the Forest products Division, Department of Commerce. Foreign shipments of this commodity during the first four months amounted to 9,364,852 pounds, valued at $641,884, and were 5 per cent higher than the quantity exported during the corresponding period of 1938, statistics show.

Exports of writing paper during the 12 months of 1938 were valued at more than $2,100,000 and ranked first among the paper exports of the United States during that year.

Leading foreign markets for U. S. writing paper were Canada, Cuba, Hong Kong and the Philippines.

Baltimore's Second Industrial Survey

In the *Second Industrial Survey of Baltimore* recently published by the Consolidated Gas, Electric Light and Power Company of Baltimore, this city is shown to possess unusually favorable labor conditions, and transportation facilities that might well be envied by any other city in the United States.

During the 25 years since the first Survey was published, the volume of manufacturing activity in the industrial area covered, as measured by the value of manufactured products, has more than trebled. Continuing, the Survey states, "In the same space of time, the aggregate wages paid to workers in manufacturing occupations has also more than trebled, while the number of wage earners employed has increased approximately one-third." In comparison with the United States as a whole, Baltimore's percentage increase of manufacturing activity was 210 per cent against the 160 per cent national average in value of manufactured products.

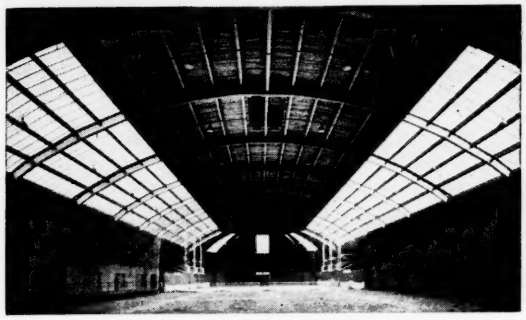
Occupying first place among the industries of the area is the manufacture of iron and steel and their various products other than machinery. The value of these products in 1937 was $204,365,000, an increase of 447 per cent over the $37,368,000 in 1914, and the number of wage earners increased 132 per cent. The second largest industry is food productions, whose value rose from $55,947,000 in 1914 to $194,159,000 in 1937. However, measured by percentage of growth, the most spectacular advance was made in the field of transportation equipment. From 3,000 employees in 1914 producing products valued at $6,448,000, this industry grew to 9,143 employees in 1937, and the value of products increased to $105,764,000.

Steel Lift Truck Platform

Marking its entry into the industrial field, The Union Metal Manufacturing Company of Canton, Ohio, already well known in the utility, petroleum marketing and heavy construction industries, announces the introduction of a new all-steel lift truck platform with double corrugations, available in all the customary variations, including a complete line of steel corrugated platform boxes. The patented platform corrugation consists of two half round recesses joined by a raised center rib. Both recesses and raised rib transverse the entire deck of the platform, rolling over the knee in a gradual curve and down the legs. This construction, it is claimed, gives exceptional strength at the knee where the usual point of failure occurs; that in flowing over the bend the center rib acts as a knee brace or gusset, that in traversing the deck it acts as an integral bar brace, and that in the legs it acts as a bar brace stiffener.

Small Adjustable-Speed Drive

An all-electric, a. c., adjustable-speed drive employing a proven principle of speed control heretofore confined to large units has been developed by The Reliance Electric & Engineering Company of Cleveland, Ohio. The new drive consists of a control unit and an adjustable-speed motor which is applied directly to the machine to be driven. This speed-changing combination is designed to bring motor users having only an alternating current power supply an economical means of varying the operating speeds of their small motors (from one H.P. up) over as much as a 12 to 1 range. The speed control unit has been designed for use on three-phase, 60-cycle, 220, 440, and 550 volt a. c. circuits.



Field House, Swarthmore College, Swarthmore, Pa.
11,000 sq. ft. Actinic Corrugated Wire Glass Skylights.

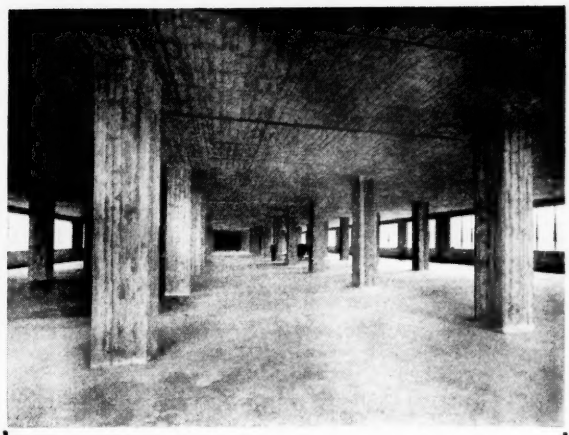
SPECIFY ORIGINAL SOLID CORRUGATED WIRE GLASS

It *diffuses* light with a minimum of shadows. *It is practically* self-cleaning and can be used on a roof of any material and supply daylight in manufacturing and industrial plants—an important factor in all modern production.

Also used with excellent results on sidewalls, marquises, canopies and wherever daylight is needed.

Our Engineering Service Department can aid you on your skylighting problems. Write or wire.

PENNSYLVANIA WIRE GLASS CO.
1612 MARKET STREET
PHILADELPHIA, PENNSYLVANIA



Building No. 20—Minn. Mining & Mfg. Co. St. Paul, Minn.
Toltz, King and Day, Inc.—Engineers & Architects
Wm. Murphy & Son, General Contractors
One of 3 Buildings Constructed by M. M. & M. Co.
Using "Smooth Ceilings" Floor Construction

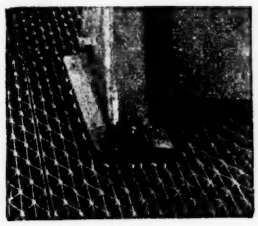
Ceilings All Flat.
Columns May Be of Steel or Concrete.
Pipes and Ducts Readily Pass Through Floor Slab Around Columns.
Structural Steel Column Heads Embedded in Floor Slabs Replace Cumbersome Concrete Caps in this New Type Flat Slab Floor Construction

"SMOOTH CEILINGS" SYSTEM, PTD.
See Sweet's Catalogue
802 Met. Life Bldg., Minneapolis, Minn.

Kerlow SteelFloors

Better Floors for Safety

Kerlow industrial floors are safer and give better ventilation—made in various types 70% to 90% open—made in all riveted and rectangular designs for personal choice. Kerlow "BOLDEJ" Safety Steps are made in all grating designs. Ask for catalog.



1. *Open for Ventilation*
2. *Non-slipping*
3. *Fireproof*
4. *Self-cleaning*
5. *Custom-Made to Fit*

Southern Agents

Greenville, S. C.	Chattanooga, Tenn.
Atlanta, Ga.	Knoxville, Tenn.
Birmingham, Ala.	Baltimore, Md.
Jacksonville, Fla.	Memphis, Tenn.
New Orleans, La.	Louisville, Ky.

KERLOW STEEL FLOORING COMPANY
220-222 Culver Avenue Jersey City, N. J.

LYONORE METAL will

STAND THE TEST

Proper use of the brake on galvanized Lyonore Metal allays the fear of flaking or peeling, because this famous Chromium, Nickel, Copper, Iron alloy sheet possesses a uniform close grain that grips the spelter coating firmly. Sharp corners and intricate shapes are easy . . . This alloy sheet provides remarkable corrosion-resistance and long life. Use genuine Lyonore Metal for all sheet metal requirements!

Lyon, Conklin & Co. Inc.
WASHINGTON BALTIMORE

Lyonore Metal
CHROMIUM — NICKEL — COPPER — IRON ALLOY

CREOSOTED TIES, PILING, POLES, POSTS, CROSS ARMS, and LUMBER

WOLMANIZED LUMBER—
Decay and Termite Proof—Can Be Painted
Docks for Ocean Vessels

American Creosote Works, Inc.
New Orleans, La.

Atlantic Creosoting Co., Inc.
Norfolk, Virginia

Plants at: New Orleans; Winnfield, La.; Louisville, Miss. Savannah, Ga.; Jackson, Tenn., and Norfolk, Va.

The Increasing Utility of Sulphur

(*Continued from page* 31)

used for the "pickling" of iron and steel products. Last year a Cleveland chemist announced development of a process whereby the waste pickling liquid can be transformed into a building material called Ferron. Largely co-precipitated iron oxide and calcium sulphate, Ferron is said to be fire-proof, termite-proof and warp-proof.

During the past few years there has developed widespread recognition of the value of sulphur as a lubricant base. It has been established by extensive experiments on lubricant testing machines that sulphur is an excellent "extreme pressure" agent. For this purpose, sulphur is used in loose combination with vegetable, animal or mineral oils. An ordinary oil film on a bearing surface breaks down and becomes a mere cooling agent when subjected to high pressures; the addition of sulphur particles has fitted oils for tremendously increased gear loads.

Research during the past year by a British firm into the chemistry of sulphuric-acid-catalyzed polymerization of petroleum refinery by-product gases forecasts the commercial recovery of valuable gases for use in the increased production of high-octane fuels. This particular development, it is believed by petroleum experts, may some day be considered as important as the application of sulphuric acid to petroleum refining or the earlier use of the acid in preventing deterioration of high-test fuels in storage.

Another 1938 development of potential value to the petroleum industry was the discovery that reacting pine oil with elemental sulphur produces "sulphurized terpene." Experiments indicate that addition of 1 per cent to 2 per cent of terpene to fuel oil will produce an improved, rapid-ignition, anti-knock Diesel fuel. A patent for this process has been assigned to the Socony-Vacuum Oil Company of New York.

The use of sulphuryl chloride in the Hall process for the prevention of wool shrinkage was discovered during 1938. Originally an English development, this process has been licensed for use in the United States and is finding increasing recognition among manufacturers of woolen blankets, socks and other articles.

Modern medicine finds increasing use for sulphur in fighting disease on a wide front. Sulphur ointment and sulphur baths are widely used in treatment of skin disease. Intravenous injections of collodial sulphur, it has been discovered in recent years, are of great value in controlling arthritis. Most spectacular of the new medicinal sulphur uses, however, have developed from research into the remarkable powers of sulfanilimide, the physician's latest weapon against pneumonia and other diseases. Chemical research under way today forecasts further control of tuberculosis, leprosy, influenza and smallpox by sulfanilimide derivatives.

It is significant to note that sulfanilimide derivative treatment for pneumonia is not only more effective, but more economical than previous methods of control. Dr. Perrin H. Long of the Johns Hopkins School of Medicine reports that it costs only $12 to treat a case of pneumonia by "sulfapyridine," while the minimum serum cost is $75. This cost comparison reflects parallel economies which have been effected in using sulphur as a cure for the ills of the land.

Farmers have long realized the low-cost role played by sulphur in the manufacture of fertilizer. Today the standard brand of 3-8-3 fertilizer (a mixture of ammonia compounds, superphosphate and potash salts) costs $17 a ton, and the 174 pounds of sulphur used to make the sulphuric acid that goes into production of a ton of this fertilizer costs only $1.24.

Sulphur-derived economies have during the past few years profited western grain farmers, who are making increasing use of dilute sulphuric acid spray in controlling annual weeds. At a cost of about $3 an acre, such treatments have increased grain yields as much as 50 per cent. Cotton fleahopper control by sulphur has resulted in yield increases as high as 350 pounds per acre, with profit increases as high as $11.68 per acre, from sulphur applications averaging $2.69 per acre—according to results of field tests conducted at Calhoun County, Texas, reported by the U. S. Bureau of Entomology and Plant Quarantine.

Sulphur-usage developments of recent years, it must be remembered, give only a fragmentary picture of the importance of sulphur and sulphuric acid, as they have long been known and used. In one or another of its many forms, sulphur is used in the production of a list of items which includes iron and steel, refrigerants and gasoline and rubber, paints, pigments, nitroglycerine and tin cans, food preservatives and soil amendment agents, pulp and paper, soap, and many other conveniences and necessities.

Railway Expenditures In Texas Exceed $10,000,000 A Month

(*Continued from page* 27)

employment to many thousands of workers. In 1937, when employment was below normal, the Class I railroads and the Pullman Company reported 51,338 employes, widely distributed over the state.

Ten railroads have payrolls in Texas of more than $1,000,000 a year each. Five of these have payrolls of more than $5,000,000 a year, and three have payrolls of more than $10,000,000 a year. Altogether, the Class I railroads and the Pullman Company paid out more than $80,000,000 in wages in Texas during 1937. The importance of the railway payroll is better understood when it is pointed out that the payroll of the average manufacturing establishment in Texas amounted to approximately $30,000 in 1937. Therefore, the railroad payroll was equal to that of 2,667 of the state's 4,422 manufacturing plants.

Thus, as providers of passenger, freight, express and mail service, as purchasers of Texas products, as employers of Texas workers and as supporters through taxes of schools and highways and of town, county and state governments, the railroads play a major role in the economic life of the Lone Star State.

Shipbuilding In the United States

(*Continued from page* 29)

Bids are pending at the present time for a number of cargo vessels of the C-1 type, a design of vessel somewhat smaller in size and of slower speed than those of the C-2 type. Bids on these vessels are to be opened on July 11, 1939.

In addition, bids are pending for three vessels for the Seas Shipping Company, Inc. of New York to be operated in a service between the East Coast of the United States and the East Coast of Africa. These vessels are to be of 15½ knots and about 9,900 tons deadweight, bids for which are to be opened on August 1.

J. Beecher Adams Passes

We are sorry to record the death of J. Beecher Adams, Chairman of the Board of the Longview-Saginaw Lime Works, Inc., Birmingham, Ala., who passed away June 12.

His entire life had been devoted to the business in which he was engaged, and while he had been ailing for some time his interest and able counsel in the affairs of the company will be greatly missed by his associates.

He was a man of broad vision, with a true conception of things affecting not only his immediate interests, but the South and the country as a whole.

He died at the age of 72 after rounding out a service of more than 50 years.

WATERPROOFING MATERIALS— Booklet—20 pages, devoted to waterproofing materials especially adapted for waterproofing leaky masonry walls, basements, dams, pits, etc.; publication compiled from facts obtained in 25 years' experience in manufacturing and contracting; may be obtained from—

Ranetite Manufacturing Company, Inc., 1931 S. Broadway, St. Louis, Mo.

GLAMORGAN
PIPE & FOUNDRY CO.
LYNCHBURG, VA

Bristol Steel & Iron Works, Inc.
STRUCTURAL STEEL
For Bridges, Buildings and All Industrial Purposes
Steel Plate and Miscellaneous Iron Work
Complete Stock Shapes, Plates, Sheets and Bars for Immediate Shipment
BRISTOL, VIRGINIA-TENNESSEE
"SAVE WITH STEEL"

ELECTRIC ELEVATORS
FREIGHT AND PASSENGER
Ball Bearing. Push Button Control
Moderately Priced. Installed or F.O.B.
Bulletins and Prices On Request.
WALTER ELECTRIC MFG. CO.
215-217 Cumberland St. Norfolk, Va.

GALVANIZING
(HOT DIPPED PROCESS)
The largest job galvanizing plant in the United States
GALVANIZED PRODUCTS FURNISHED
Joseph P. Cattie & Bros., Philadelphia, Pa.

STRUCTURAL STEEL *for* BUILDINGS and BRIDGES
Capacity 1000 Tons per Month. 3000 Tons in Stock
Carolina Steel and Iron Company
The Largest Steel Fabricators in the Carolinas
Greensboro North Carolina
S. C. Rep., Edward McCrady, 307 Allen Bldg., Greenville, S. C.

CONVERSE BRIDGE & STEEL CO.
Chattanooga, Tennessee
Structural Steel for all Industrial Structures, Buildings and Bridges.
LARGE STOCK FOR IMMEDIATE SHIPMENT

SAND—GRAVEL—BRICK
FILTER GRAVEL
Washed Sand and Gravel for Concrete Roads and Buildings
Filter Gravel, all sizes—Building Bricks
FRIEND & CO., INC. River St., Petersburg, Va.

MOUNT AIRY GRANITE
THE NORTH CAROLINA GRANITE CORP'N.
Mount Airy, N. C.

LONG LIFE TO LUMBER!
To add from 8 to 20 times the ordinary life and service you might expect from your lumber, use only pressure-preserved woods treated with ZMA or Creosote. Eppinger and Russell Co. has, for 61 years, been treating poles, ties, posts, piling, cross arms, cross ties and other timber for the nation's leading industrial firms and utilities. Safeguard your lumber against dry rot and termites by employing this outstanding wood-treating service.
PRESSURE-TREATING PLANTS AT:
Jacksonville, Fla.
and
Long Island City, N. Y.
WOOD PRESERVERS SINCE 1878
EPPINGER AND RUSSELL CO.
84 Eighth Ave., New York City

BELMONT IRON WORKS
PHILADELPHIA NEW YORK EDDYSTONE
Southern Sales Offices, Charlotte, N. C.
Engineers . Contractors . Exporters
STRUCTURAL STEEL
BUILDINGS AND BRIDGES
RIVETED-ARC WELDED
BELMONT INTERLOCKING CHANNEL FLOOR
Write for Catalogue
Main Office—Philadelphia, Pa.
New York Office—44 Whitehall St.

CRUSHED STONE
Only highest grades of crushed
LIMESTONE AND GRANITE
Meeting all specifications
CAPACITY—8000 tons daily
Blue Ridge, Va. Pembroke, Va. Pounding Mill, Va.
Boxley, Greensville County, Va.
W. W. BOXLEY & COMPANY
Boxley Building, ROANOKE, VA.

***NEW* Sewer and Culvert Construction**
By making concrete pipe on the job with Quinn Forms you give more men more work, can use less experienced labor and produce uniform concrete pipe of highest quality. Recognized standard of all concrete pipe.

QUINN PIPE FORMS
Quinn Heavy Duty and Medium Duty Pipe Forms best for hand or wet process pipe. Give more years of service. All diameters—12 to 84 inches. Tongue and groove or bell end pipe, any length.
WRITE for New Book on Concrete Pipe giving information and prices, valuable tables on production costs, strength tests, Pipe Forms, Pipe Machines, etc. Book sent free.
QUINN WIRE & IRON WORKS 1605 12 St. Boone, Iowa

Wage Hour Law Hampers South's Lumber Industry

(*Continued from page* 28)

tiously complying with the law's provisions.

In various parts of the South logging crews have been deprived of their customary weekly or monthly earnings, because of rainy weather, and their being prevented by the law from making up this lost time during the weeks when the weather is favorable. Much unemployment also has been caused among some of the plant crews, from inability to procure logs at the mills, and these employees also are prevented from making up their lost time in succeeding weeks. Many skilled workers in the industry, who receive wages considerably higher than the minimum, have seen their weekly earnings reduced owing to restrictions of the Act on the number of hours they may work. These workers have expressed great dissatisfaction with the law to their employers. Hundreds of complaints of violations of the law in the South's lumber industry have been filed with the Wage and Hour Division, but up to this time only two prosecutions of alleged violators in this industry have been instituted.

In speeches delivered in the U. S. Senate on May 29, Senators George, of Georgia and Smith of South Carolina, vigorously denounced the Federal wage-hour law as causing harm to many industries in the South, particularly small concerns, and increasing unemployment. Senator George asserted that the law has had the effect of forcing many small industrial plants in the South out of business and has thrown many workers out of employment. Senator Smith said: "I wish the members of this body could visit my state and see the disastrous effect of the application of the wage-and-hour law on small industries which were struggling to carry on." He mentioned specifically hardships imposed by the law upon the lumber industry of his state, and told of lumber workers who have been forced out of jobs by the Act. "I think there has not been a law passed, to my knowledge, since I have been a member of the Senate, which has had the blighting and disastrous effect that the present wages-and-hours law has had," Senator Smith declared.

In a statement before the Senate Sub-Committee on Appropriations on May 18, Wage-Hour Administrator Andrews, in appealing for larger appropriations for administering and enforcing the law, pictured the status of wage-hour law enforcement. He said in part:

"The public generally supports the Act; labor supports it; I believe a majority of the employers of the country recognize its value in their own dealings and in the economy of the country as a whole. But —and this, I submit, is a very grave and disquieting fact—many well-established, highly responsible employers who have been and are now complying with the Act are suffering from competition furnished by employers who are not complying with the act. Our field staff of inspectors, our central office staff both in the cooperation and enforcement branch and in the legal branch where preparations for litigation are made, are undermanned and overworked. Today we are able to take care of not more than one-fifth of the load of valid complaints. * * *

"Several weeks ago we faced a critical situation in a major industry. Responsible leaders of the industry said that the bulk of the employers were complying, but that the competition furnished by a minority of violators was intolerable. They pointed out that the responsible employers could not continue to comply and stay in business unless we checked the production and sale in interstate commerce of goods produced in violation of the Act. We thereupon swung practically the entire inspection staff in the region over to inspection of plants in the industry. We brought action against one concern and obtained a consent decree which instantly tied up a major part of his stock, preventing its movement in interstate commerce. * * *"

It is known that the "major industry" in which the "critical situation" was faced by the Division, was the Southern lumber industry. Further along in his statement Administrator Andrews said:

"The enforcement picture for the country as a whole can be presented briefly. As of May 2, we had received a total of 14,370 complaints which alleged violations of the Act. A total of 9,915 complaints had been analyzed as of this date, leaving approximately 5,400 complaints which have not as yet been completely analyzed. It appears that 4,839 out of the 9,915 complaints analyzed constitute violations of the Act if the facts stated in the complaints are found by investigation to be accurate. If the same proportion holds true for those complaints not yet analyzed, we estimate that approximately 6,675 complaints will require investigation in order to determine to what extent violations exist.

"There are 123 inspectors in the field at the present time, in addition to 6 regional directors and 4 attorneys. * * * This staff of 123 inspectors had been able to make only 1,030 inspections to date. This is about 20 per cent of the total number of inspections which should be made immediately. * * *

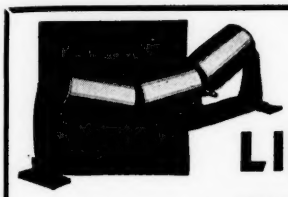
"I should like to say in conclusion, that in passing this Act, Congress undertook a grave responsibility to employers and employees. By inference it assured them that employment in violation of the Act would not be permitted and that goods produced in violation of the Act would not be permitted to compete with goods produced in compliance with the standards set up in the act. Discharge of that responsibility cannot be a half, a quarter, or a two-thirds job. It must be 100 per cent if employers are not to be competitively penalized for their virtue. Little leaks in the levee must be blocked quickly or they will grow much larger and whole levee may wash out. The Fair Labor Standards Act is workable and is enforceable, but it can fail. It can fail within the next few months or the next year if, because of lack of adequate personnel, we do not make violation so risky and so costly that compliance is universal. * * *"

Administrator Andrews' statement before the Senate sub-Committee brings out some decidedly pertinent facts respecting the status of compliance with the act, the effect of the act upon industry, the attitude of many operators toward the law, and the situation confronting the responsible members of the Southern lumber industry.

After thoroughly reviewing the situation, the Southern Pine Industry Committee at its meeting June 16, adopted a resolution that the industry vigorously urge the adoption of four amendments to the wage-hour act, as follows: (1) Postpone for one year the effective date of the 30c minimum wage rate and the 42-hour maximum work-week, which under the existing provisions of the law become effective October 24, 1939; (2) Amend Section 3-m of the act so as to relieve the present impossible situation respecting sales to employees by employer-owned stores and the rental of employer-owned houses; (3) Partially exempt logging and transporting of logs from the hours provisions of the Act, so that loggers deprived of work due to weather conditions may make up the time lost during favorable weather periods, and (4) exempt "white collar" workers, clerical employees, who are paid straight salaries and are given vacations with pay each year.

It would seem that, in view of widespread complaints of non-compliance and violations of the Act with a 25c minimum wage and 44-hour work-week, it would be only fair and wise that the increase in the burdens upon manufacturers who comply with the law, should not be imposed until time has elapsed to permit of ascertaining the effects upon industry and employment of the lower wage and longer hours provisions, and until enforcement of the Act has become more uniform and assured. A wage increase from 25c to 30c per hour means a 20 per cent increase in labor costs, and a reduction in hours from 44 to 42 per week, means approximately a 5 per cent reduction in operating time, with a corresponding increase in overhead, or in overtime, if more than 42 hours are worked in any one week.

The situation of a great number of Southern lumber operations under the present wage and hour scales is distinctly precarious. The market situation certainly does not justify additional production costs. In view of the many violations and difficulties encountered in enforcing 25c and 44 hours, what will be the situation with a 30c wage and 42-hour week? Will there not be greater competitive hardships on those complying with the law, and added incentive for chiseling?

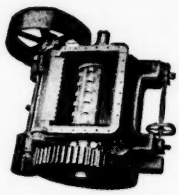


LINK-BELT
ANTI-FRICTION
BELT CONVEYOR IDLERS

are free turning — accurately made. They assure the belt conveyor a good roadbed for economical operation . . . minimum friction loads . . . long belt life . . . and the lowest maintenance cost. Send for catalog.

Send for Catalog

LINK-BELT COMPANY, ATLANTA, PHILADELPHIA, DALLAS, BALTIMORE NEW ORLEANS 7608-A



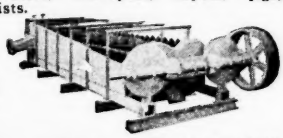
McLANAHAN EQUIPMENT

CRUSHERS

Single and double roll and jaw crushers, hammer mills, super dry pans—steel log washers and scrubbers, sand drags, revolving and vibrating screens, elevators, conveyors, dryers, jigs, hoists.

SCREENS

Complete portable, semi-portable and stationary crushing, screening and washing plants for different capacities of any materials.



McLanahan & Stone Corp. *Established 1835* HOLLIDAYSBURG, PENNSYLVANIA

TO RAISE PANELS ON A SHAPER—

is no trick at all if one is prepared with a Shimer Panel Raising Cutter to fit the spindle of the Shaper. This Cutter, moulded to agree with the shape of the panel and provided with clearance, furnishes a permanent and free-cutting instrument that any practical man will appreciate because he can do so much with it. Made to cut either clockwise or anti-clockwise, in 34 or more distinct shapes—to suit the most particular person.

Write us for further information, giving sketch of the panel, size of spindle and the direction in which the Cutter shall rotate.

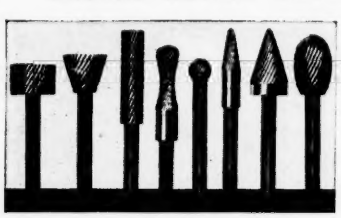
SAMUEL J. SHIMER & SONS, INC.
MILTON, PENNSYLVANIA

BUY ON QUALITY IT PAYS

Strand

SIXTY TYPES AND SIZES

FLEXIBLE SHAFT MACHINES
GROUND ROTARY CUTTERS



IT PAYS TO BUY THE BEST

N. A. STRAND & CO.
5001 No. Wolcott Ave.
CHICAGO

IF you are among those who believe cast iron pulleys are as extinct as the dodo bird you ought to look in on the Jones foundry some time. You will see all sizes and types in production for actually the sale of Jones cast iron pulleys is going up all the time.

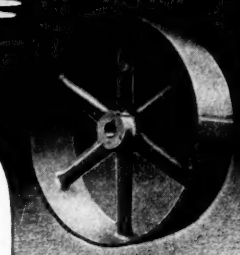
There are some very good reasons for this activity on Jones cast iron pulleys . . . reasons that you will want to consider in connection with your pulley requirements. They are true running . . . they permit higher speeds . . . no bushings . . . they can't fall apart . . . they don't rattle . . . they look better on most machines . . . they can take a lot of punishment.

It will pay you to get acquainted with the Jones cast iron pulley family — they may help pull you out of a hole sometime or even do you a good turn when you least expect it.

W. A. JONES FOUNDRY & MACHINE CO.
4425 Roosevelt Rd., Chicago, Ill.

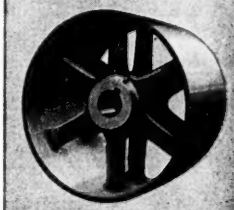
BULLETIN No. 66 gives complete engineering specifications and prices on a broad range of Jones cast iron pulleys.

WRITE FOR YOUR COPY

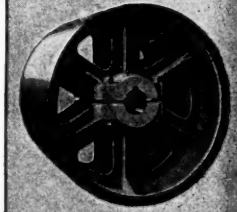


SINGLE ARM SOLID

COMPLETELY SPLIT



DOUBLE ARM



EXTRA HEAVY CONVEYOR

Since 1890

Jones

HERRINGBONE -- WORM — SPUR — GEAR SPEED REDUCERS
CUT AND MOLDED TOOTH GEARS — V-BELT SHEAVES
ANTI-FRICTION PILLOW BLOCKS — PULLEYS
FRICTION CLUTCHES AND TRANSMISSION APPLIANCES

A Balance Sheet View Of The Southwest

BY

C. C. Rockenbach

St. Louis Southwestern Railway Lines
St. Louis, Mo.

CIVIC leaders usually are conscious of the benefits to the community to be derived from industrial development, but they do not always recognize and fully appreciate the extent to which such development affects their own pocketbooks.

After several centuries of transition, this country has emerged as the greatest industrial nation on earth. Production income from all sources amounted to $49,755,000,000.00 in 1935.(1) Of this amount, income from agriculture represented $5,498,000,000.00 or 11.05 per cent. Average per capita income in the United States for the same period amounted to $388.00.(2) It has long been the concensus in informed circles, that, as a general rule, per capita income increases in proportion to the increase of income from industrial production. A comparison of the figures shown below covering the Southwestern States, illustrates this view:

	Industrial Production Income	Per Capita Income
Arkansas ..	$226,000,000.00	$165.76
Oklahoma ..	451,000,000.00	231.20
Louisiana ..	469,000,000.00	270.00
Texas	1,343,000,000.00	288.83

Stated otherwise, it is usually true that the per capita income in a state is low where the percentage of income derived from agriculture is high. The following statement will serve to illustrate this point, except in the case of Texas which has a tremendous land area and, as yet, a comparatively small population.

	Per cent of total income due to agriculture	Per Capita Income
Arkansas	28.25	$165.76
Oklahoma ...	21.97	231.20
Louisiana	17.28	270.00
Texas	22.50	288.83
New York	3.51	634.21

By comparing the States of Arkansas and New York, the extremes shown in the table above, the relationship is more clearly seen.

These figures show that the more highly industrialized states have not only a larger total income, but a higher per capita income as well. On the other hand, concentration of industrial production has, in some instances, been carried beyond the point of increasing returns in profit. Many industries, characterized by such concentrated production, are paying distribution costs large enough to offset the overhead incident to construction and operation of branch plants in the areas where markets are growing rapidly. The automobile industry and the paper industry have taken the lead in affirming the wisdom of such decentralization in the Southwest. We are confident that their operations here will prove duly profitable.

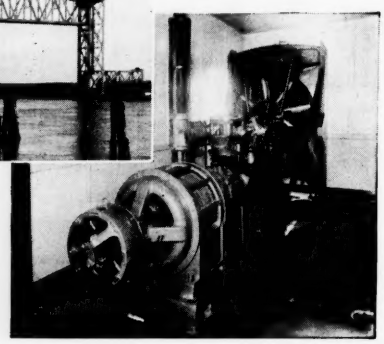
The figures quoted above would seem to indicate that industries confer very definite financial benefits upon the popu-

(*Continued on page* 58)

(1) Production income received in the United States 1929-1935 National Industrial Conference Board, New York, 1937, P. 42-50.
(2) Computed from mid-year estimates of population by U. S. Census Bureau.

THE GOLDEN GATE BRIDGE—SAN FRANCISCO
TRIBOROUGH BRIDGE—NEW YORK
WELLAND CANAL BRIDGES—20—CANADA

The Pennsylvania Railroad Bridges, C.R.R. of N.J. Bridge, the D.L. & W.R.R. Bridges at Newark, the New York State Bridges at Albany, most all of the prominent bridges in the past 20 years have Sterling Engines, either for primary power or emergency.



Cape Cod Canal Bridge at Buzzards Bay, Massachusetts, project of U. S. Engineers, is equipped with 125 K.W. 1200 R.P.M. generator, driven by Sterling Dolphin C 8-cylinder gasoline engine.

Sterling High Duty

Sterling
THE ENGINE OF REFINEMENT

Internal Combustion Engines

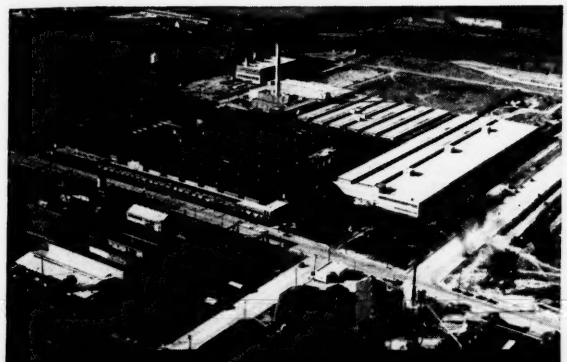
The accumulated data, covering all details required for a successful installation—yours on request.

STERLING ENGINE COMPANY

Home Office and Plant,
1270 Niagara Street,
Buffalo, New York

Dept. C-7

Branch Office,
900 Chrysler Bldg.,
New York, N. Y.



4 Layne WELLS & PUMPS
FOR FIRESTONE TIRE & RUBBER CO.

WHEN the Firestone Tire & Rubber Company began construction of their Memphis plant, their first requisite was an ample and dependable supply of cool, clear and pure water. Their selection was a battery of three 500 feet deep Layne Gravel Wall Wells. A fourth has now been added as a reserve unit.

All four wells are of the Gravel Wall Underreamed Type, equipped with Layne Everdur Shutter Screen. Installed in each is a Layne Vertical Turbine Pump driven by a 40 H.P. motor. The combined capacity of the four units is over 7,000,000 gallons of water per day. The system was installed by Layne-Central Company, Memphis, Tennessee.

Thus Firestone Tire & Rubber Company, like many other leading manufacturers, has secured the very finest Water Supply System possible to obtain.

AFFILIATED COMPANIES

LAYNE-ARKANSAS CO. . STUTTGART, ARK.
LAYNE-ATLANTIC CO. . . . NORFOLK, VA.
LAYNE-CENTRAL CO. . . MEMPHIS, TENN.
LAYNE-NORTHERN CO. . MISHAWAKA, IND.
LAYNE-LOUISIANA CO. LAKE CHARLES, LA.
LAYNE-NEW YORK CO. . NEW YORK CITY, AND PITTSBURGH . . . . . PA.
LAYNE-NORTHWEST CO. MILWAUKEE, WIS.
LAYNE-OHIO CO. . . . COLUMBUS, OHIO
LAYNE-TEXAS CO. . . . HOUSTON AND DALLAS . . . . . TEXAS.
LAYNE-WESTERN CO. . KANSAS CITY, MO. CHICAGO, ILL. . . . OMAHA, NEBRASKA
LAYNE-WESTERN CO. OF MINNESOTA MINNEAPOLIS . . . . . MINN.
LAYNE-BOWLER NEW ENGLAND COMPANY. BOSTON . . . . . MASSACHUSETTS.
INTERNATIONAL WATER SUPPLY, LTD., LONDON . . . . . ONTARIO, CANADA

Whether for manufacturing or municipal use, Layne Wells and Pumps are known to be highest in efficiency and lowest in operating and upkeep cost.

Our engineers will gladly cooperate on plans for reconditioning old or the construction of new Well Water Supply Systems. If you would like to receive our Bulletins, address

LAYNE & BOWLER, INC.
Dept. X-1, Memphis, Tenn.

LAYNE

PUMPS & WELL WATER SYSTEMS

For Municipalities, Industries, Railroads, Mines and Irrigation

PERFORATED METAL

of every sort

for Screening, Grading, Ventilating or any industrial purpose. Also Grilles of many beautiful designs.

5631 Fillmore St., Chicago, Ill. New York Office: 114 Liberty St.

The Harrington & King PERFORATING CO.

HENDRICK
PERFORATED METALS

Screens and grilles
in all commercially rolled metals,
all standard and special designs.
Write for literature

HENDRICK MANUFACTURING CO.
44 Dundaff Street, Carbondale, Pa.
Manufacturers of Mitco Open Steel Flooring, Mitco Shur-Site Treads and Mitco Armorgrids.

ERDLE PERFORATED SHEET METALS

SIXTY YEARS' experience in Metal Perforating is your assurance of a satisfactory job.
Made to your specifications and shipped promptly.
Metal Sample Plate on Request.

ERDLE PERFORATING COMPANY,
171 York Street, Rochester, N. Y.

PERFORATED METALS

For every purpose, Industrial and Ornamental

Steel, Stainless Steel, Monel Metal, Brass, Copper, Bronze, Aluminum, Zinc, Lead, Tin Plate and all other metals or materials perforated as required, and for all kinds of screens. Send for new Catalog.

CHARLES MUNDT & SONS
490 Johnston Ave., JERSEY CITY, N. J.

A Balance Sheet View of the Southwest

(*Continued from page 56*)

lation of the area where they operate, inasmuch as per capita income is greater where they are located. The trend of industrial activity is indicative of the fact that industry is eager to carry on this decentralization where source materials, power, transportation, and other manufacturing facilities exist in addition to a market for goods produced.

The West South Central States, i.e., Arkansas, Louisiana, Oklahoma, and Texas showed 18.9 per cent increase in population from 1920 to 1930, surpassing in growth every other section of the United States, except the Pacific States. The vast oil and gas production in the Southwest, together with practically unlimited agricultural production capacity, hold out strong inducement for manufacturers in the processing industries to carry on their operation in the area. This territory has already witnessed considerable industrial development but its potentialities make the growth to date appear as only the beginning. The market for products derived from cotton and cottonseed is large enough to support several processing industries thus affording a more profitable outlet for the chief staple crop other than exporting lint. This should bring, in its train, many other manufactures to utilize the commodities produced.

Some of the more recent developments already proven practicable but not yet established as growing industries in these west south central states include paper manufacture from the quick-growth pine, products of soy beans, products of sweet potatoes, products of rice, and rice straw and products of corn stalks and cotton stalks. The chemical engineer has already demonstrated the adaptability of these raw materials for industrial use. Manufacture of various cellulose products await the development of existing processes for utilizing straw and stalks in the Southwest.

Large deposits of iron ore are found in certain areas so that iron and steel production should be possible on an economic basis, especially in view of the process recently developed for low-temperature reduction of ore by means of natural gas. It has been estimated that iron can be produced with the new process for a fuel cost of about 25% and a plant investment of about 12½% compared with the blast furnace method now in use.

First in importance among factors favoring industrialization in the Southwest are raw materials, of which there is superabundance at present, including oil, gas, limestone, lignite, sand and gravel, various kinds of clays, timber, salt, sulphur and a host of other minerals. These natural resources are so situated in proximity to each other as to afford, in some instances, economic production in the Southwest large enough to supply national markets.

A second vitally important factor which, due to its gradual appearance and to depressed business, has been only partially recognized, is the actual buying power in the Southwest. Recent tabulations of data provided by the National Industrial Conference Board and the United States Bureau of the Census show that total income in the States of Arkansas, Louisiana, Oklahoma and Texas (the West South Central Group) for the year 1937 was $4,558,000,000.00. As stated before, the West South Central States were second only to the Pacific group in the rate of population increase from 1920 to 1930. Consequently, it is reasonable to assume that an increasingly large market may be expected in the area.

These natural resources supplemented by a relatively large actual market, and a still larger one potentially, indicate a rich field for industrial development.

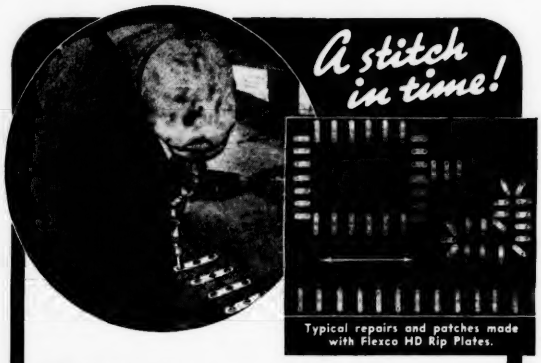
NATURAL GAS

A fuel whose value has been proven by years of use in a most diversified line of industrial applications.

Natural gas has created the possibility of effortless comfort by the facility, and economy with which it fits into the home.

SOUTHERN NATURAL GAS COMPANY

Watts Building **Birmingham, Ala.**



Typical repairs and patches made with Flexco HD Rip Plates.

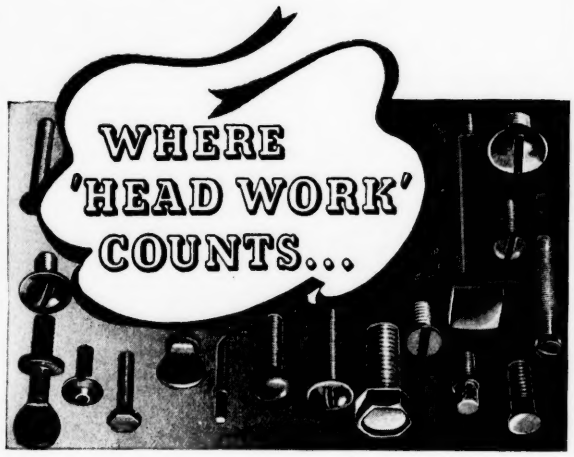
THOUSANDS of men in industrial plants, mines and mills all over the country are doing just what this man is doing. They are cutting costs by repairing conveyor belts with Flexco HD Rip Plates. *WRITE TODAY FOR FOLDER W R P* that shows how easy it is to repair rips, to strengthen soft spots and to put in patches by using Flexco HD rip plates. The folder also shows how to make tight butt joints in both conveyor and elevator belts with Flexco HD Belt Fasteners. These fasteners are made in five sizes. Furnished in special analysis steel for general use and in various alloys to meet special conditions.

Flexco HD Rip Plate

Flexco HD Belt Fastener

FLEXIBLE STEEL LACING CO.
4690 Lexington St., Chicago, Ill.

FLEXCO HD BELT FASTENERS
Sold by supply houses everywhere
REG. U.S. PAT. OFFICE



Alert buyers intent on procuring better fastening devices at a saving are discovering that PROGRESSIVE screws and headed parts — formed accurately and economically by the cold upset process—are a considerable factor in keeping production costs down and profits up. You will find it worth while to submit your problems to PROGRESSIVE experts who specialize in made to order items requiring special heads, threads or finishes. Address your inquiry to:

QUALITY PROMCO BRAND

The PROGRESSIVE MFG. CO.
TORRINGTON · · · CONNECTICUT

Today Myers brings you the most modern, the most dependable double acting cylinders on the market. There is nothing experimental about them. Designed by experts, built to precision standards, their reputation for dependable and economical service is firmly established in pump circles the country over.

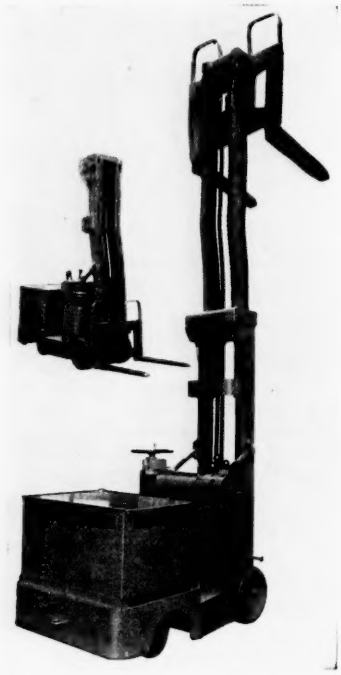
Whether conditions are regular or otherwise, Myers Double Acting Cylinders satisfactorily solve most deep well pumping problems. They furnish the plus volume of water that lowers pumping costs and satisfies the most critical of users.

If you require more water from any source at lower cost than is possible to secure by ordinary methods write us for circular and complete information.

THE F.E. MYERS & BRO. CO.
ASHLAND, OHIO
PUMPS-WATER SYSTEMS-HAY TOOLS-DOOR HANGERS

Center Control Industrial Truck

As a companion type for a similarly rated truck with rear end control, a new compactly built model truck of the center control fork type has been introduced by The Elwell-Parker Electric Company of Cleveland, Ohio, manufacturers of electric industrial trucks, tractors and cranes. Designated as the Elwell-Parker F-16, rated at 6,000 pounds, the new truck is built either as a telescoping or non-telescoping truck for inside car work or high tiering of pallet loads in warehouse. It may be fitted with a fork of two prongs



Elwell-Parker F-16 Truck

to be thrust beneath metal or wood load carrying pallets, or with a single or double ram for insertion in coils or circular ring type packages or unit loads. Forks and rams are made of various lengths and spacings to accommodate loads. The frame is a box-like formed plate all welded structure with fixed full floating axle and non-steered wheels fitted with solid rubber tires. The drive motor is enclosed, mounted on axle driving through spiral and spur gears on anti-friction bearings, all carried and adjusted in differential pot cover.

Industrial Utility of Scooters

The growing popularity of motor scooters for use by merchants in delivery service, is attested by the fact that conservative estimates place the number of motorized scooters now in such service at more than 10,000. It is estimated that more than 5,000 were purchased by merchants in 1938, and that sales for 1939 will reach 10,000. The low cost of operation of the scooters—less than one-fourth of one percent per mile—makes it possible for merchants to deliver small purchases at a profit. Three years ago Norman Siegal built a scooter from a baby buggy chassis powered by a washing machine engine. It was so efficient for running errands for his auto repair shop that he sold out and went into the scooter business. Today his company, Moto-Scoot Manufacturing Company, Chicago, is said to be the largest manufacturer of motor-scooters in the world.

LINK-BELT MACHINERY— General Catalog No. 800—1278 pages, largest and most comprehensive Link-Belt catalog ever issued, containing list prices, dimensions, weights, and engineering data on power transmission machinery, and on equipment for handling, screening, drying, cooling, preparing materials mechanically; 44-page pictorial section devoted to a bird's eye view of the many Link-Belt products. **Link-Belt Company,** 307 N. Michigan Avenue, Chicago, Ill.

WHAT HELPS THE SOUTH HELPS THE NATION

IF ANYONE today had the task of getting in touch with that periodical which has been consistently and intelligently telling its readers about the South, what it was, what it had, what it promised, it has been the MANUFACTURERS RECORD.

•

You have not been content with just publishing your magazine from time to time but each year you make available for distribution your BLUE BOOK OF SOUTHERN PROGRESS.

THERE HAS BEEN NO NARROW PARTISAN SPIRIT IN YOUR EFFORT TO HELP THE SOUTH, THERE HAS ALWAYS BEEN THE IDEA THAT WHAT HELPED THE SOUTH—WOULD HELP THE NATION.

WE ARE GLAD THAT IN THE SOUTH WE HAVE THIS MAGAZINE OF YOURS WHICH HAS BECOME *AN INSTITUTION IN ITSELF.*

Donald Comer, President, Avondale Mills of Alabama.

THE PURE OIL CO.

PURE THREE POINT LUBRICATION

A Complete Line of Industrial Petroleum Lubricants

Ask a Pure Oil Engineer to help solve your lubrication problems

CHICAGO U.S.A.